

Pantheon Report

Generated at 2018-01-10 14:45:42 (UTC).

Data path: AWS California 1 Ethernet (*local*) → Stanford ppp0 (*remote*).

Repeated the test of 14 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

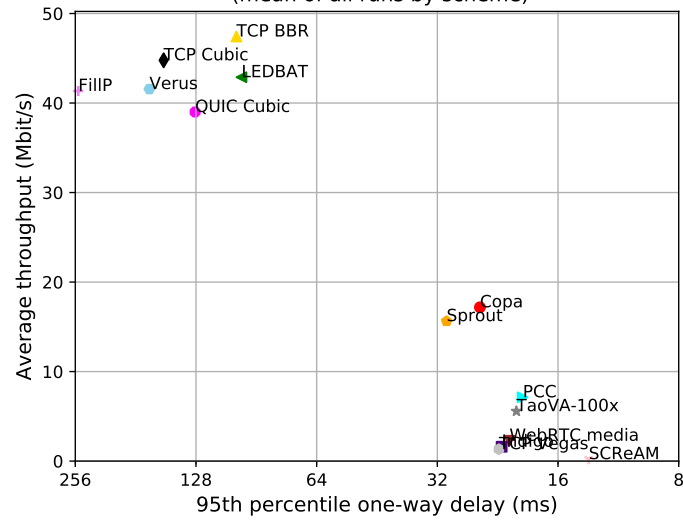
Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

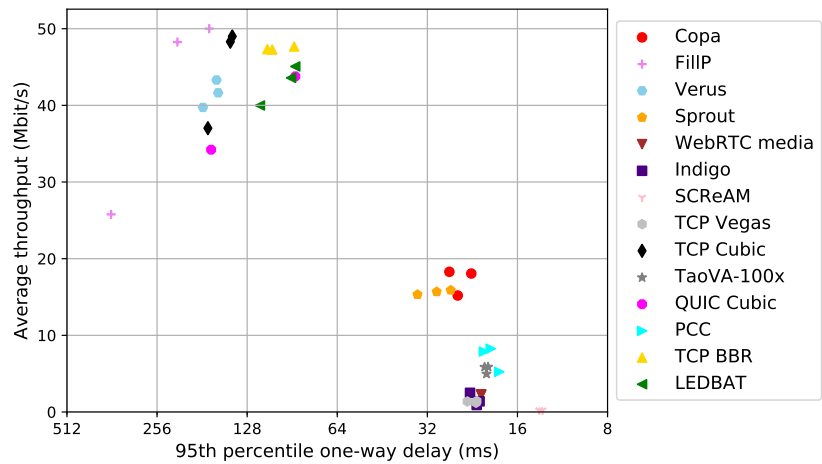
Git summary:

```
branch: master @ 56d1792c316a5efca3f2d21342905405fedffb48
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/fillp @ ec9585325218d5048c4d4152fa42240af54c6e67
third_party/genericCC @ 80b516c448f795fd6e9675f7177b69c622f07da8
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeab30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from AWS California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme
(mean of all runs by scheme)



test from AWS California 1 Ethernet to Stanford ppp0, 3 runs of 30s each per scheme



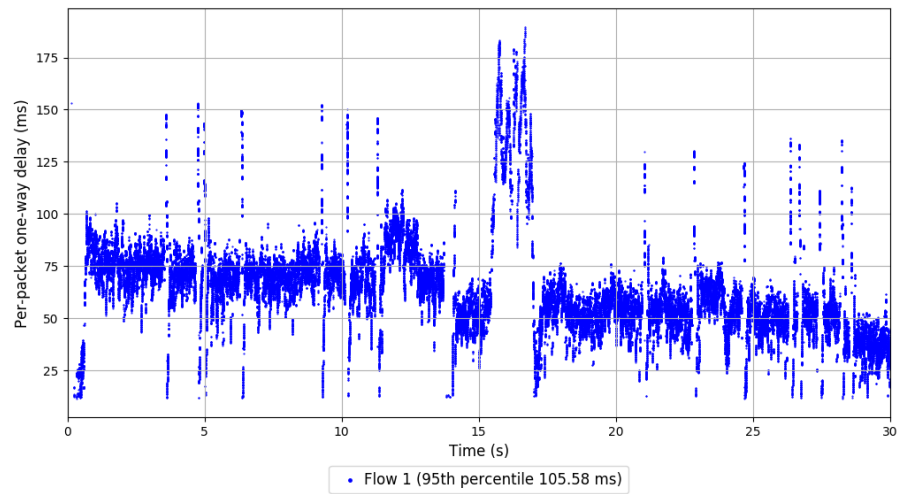
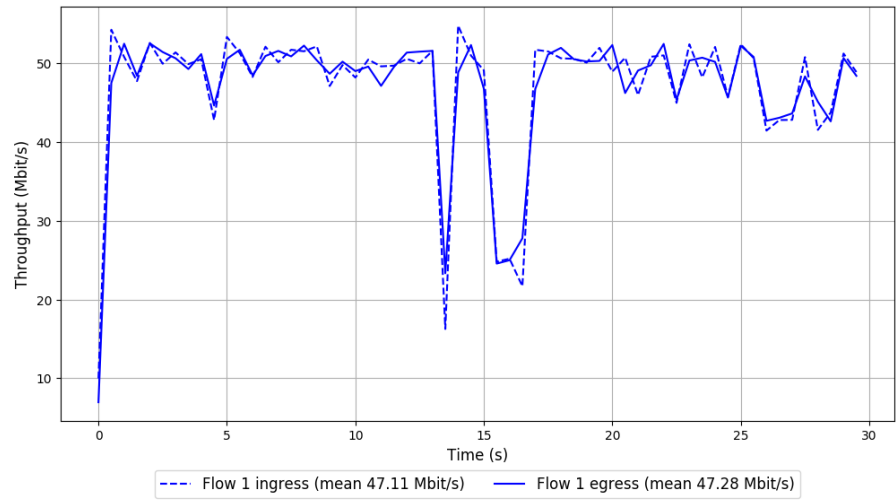
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	47.43	101.45	0.11
TCP Cubic	3	44.77	154.13	0.41
LEDBAT	3	42.88	98.58	0.17
PCC	3	7.12	19.59	0.00
QUIC Cubic	2	39.00	128.62	0.25
SCReAM	3	0.22	13.41	0.00
WebRTC media	3	2.27	21.16	0.00
Sprout	3	15.63	30.35	0.00
TaoVA-100x	3	5.57	20.32	0.00
TCP Vegas	3	1.33	22.47	0.00
Verus	3	41.56	167.28	9.40
Copa	3	17.18	25.06	0.00
FillP	3	41.35	251.63	41.37
Indigo	3	1.60	22.12	0.00

Run 1: Statistics of TCP BBR

Start at: 2018-01-10 13:52:31
End at: 2018-01-10 13:53:01
Local clock offset: -1.282 ms
Remote clock offset: -4.974 ms

Below is generated by plot.py at 2018-01-10 14:43:13
Datalink statistics
-- Total of 1 flow:
Average throughput: 47.28 Mbit/s
95th percentile per-packet one-way delay: 105.580 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 47.28 Mbit/s
95th percentile per-packet one-way delay: 105.580 ms
Loss rate: 0.16%

Run 1: Report of TCP BBR — Data Link

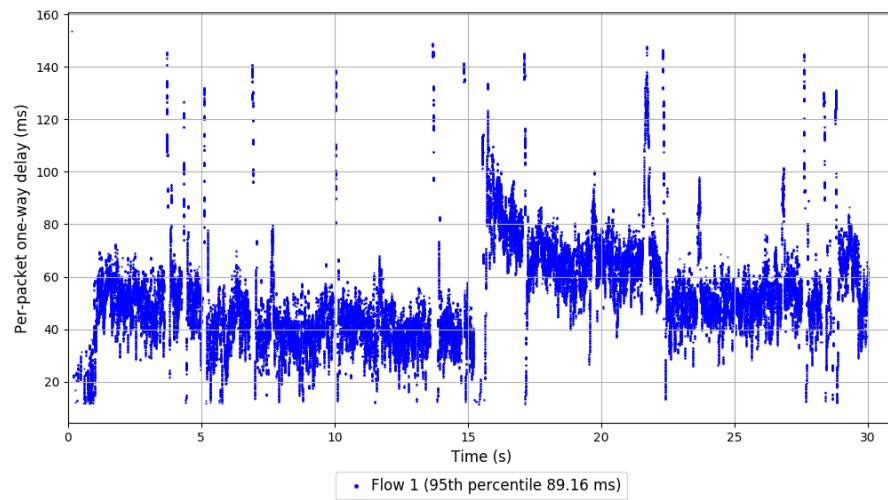
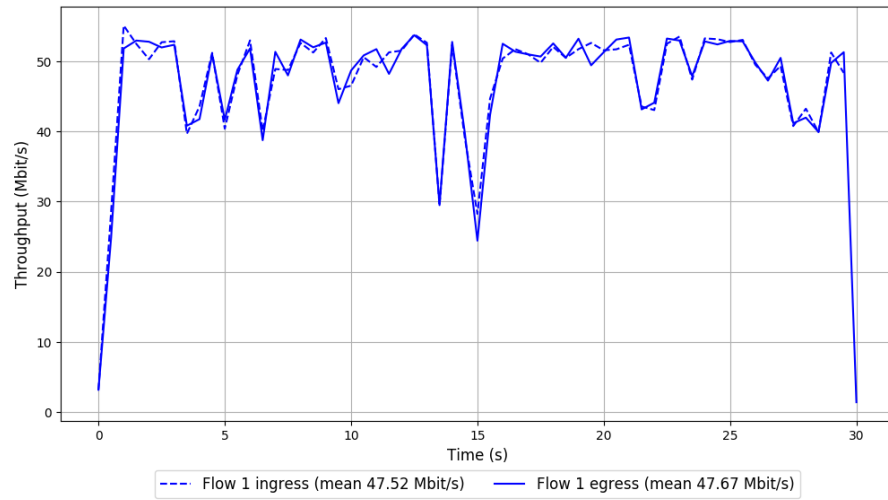


Run 2: Statistics of TCP BBR

Start at: 2018-01-10 14:10:19
End at: 2018-01-10 14:10:49
Local clock offset: -1.482 ms
Remote clock offset: -4.966 ms

Below is generated by plot.py at 2018-01-10 14:43:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 47.67 Mbit/s
95th percentile per-packet one-way delay: 89.164 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 47.67 Mbit/s
95th percentile per-packet one-way delay: 89.164 ms
Loss rate: 0.10%

Run 2: Report of TCP BBR — Data Link

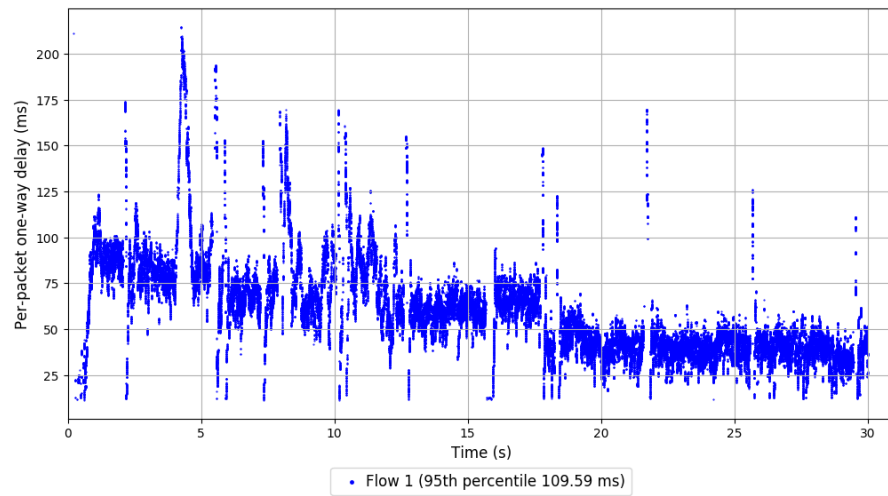
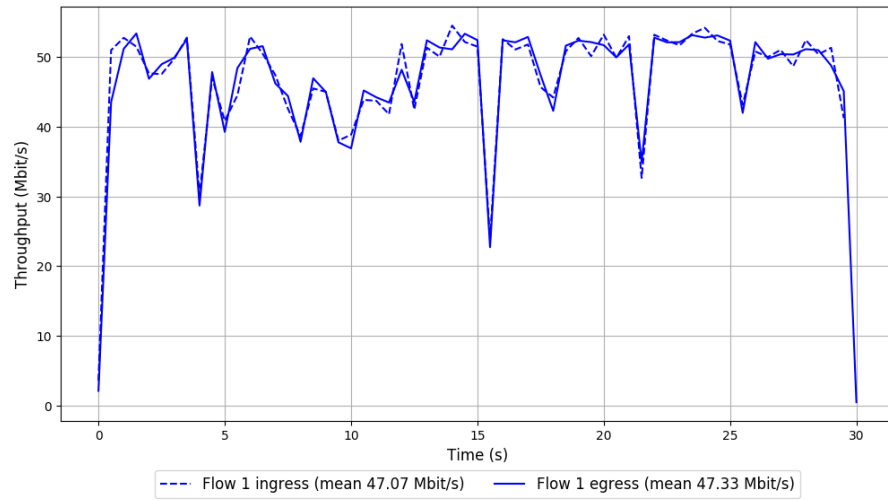


Run 3: Statistics of TCP BBR

Start at: 2018-01-10 14:28:09
End at: 2018-01-10 14:28:39
Local clock offset: -1.557 ms
Remote clock offset: -5.102 ms

Below is generated by plot.py at 2018-01-10 14:43:17
Datalink statistics
-- Total of 1 flow:
Average throughput: 47.33 Mbit/s
95th percentile per-packet one-way delay: 109.593 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 47.33 Mbit/s
95th percentile per-packet one-way delay: 109.593 ms
Loss rate: 0.06%

Run 3: Report of TCP BBR — Data Link

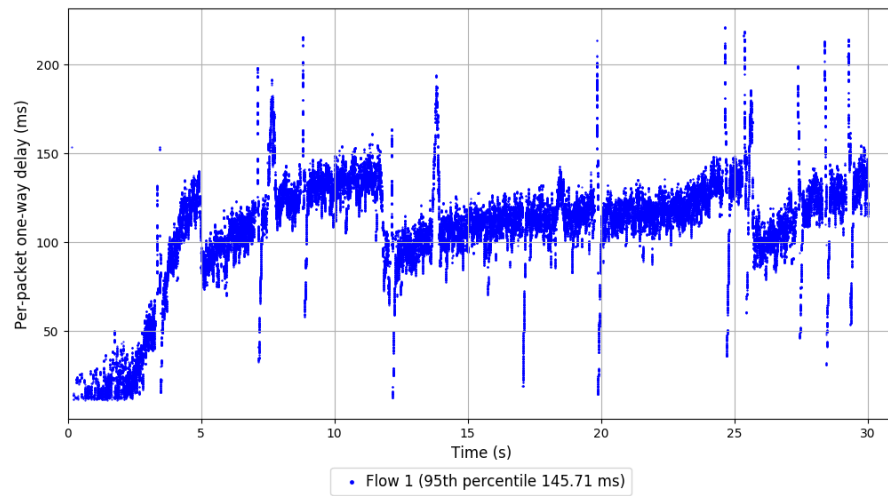
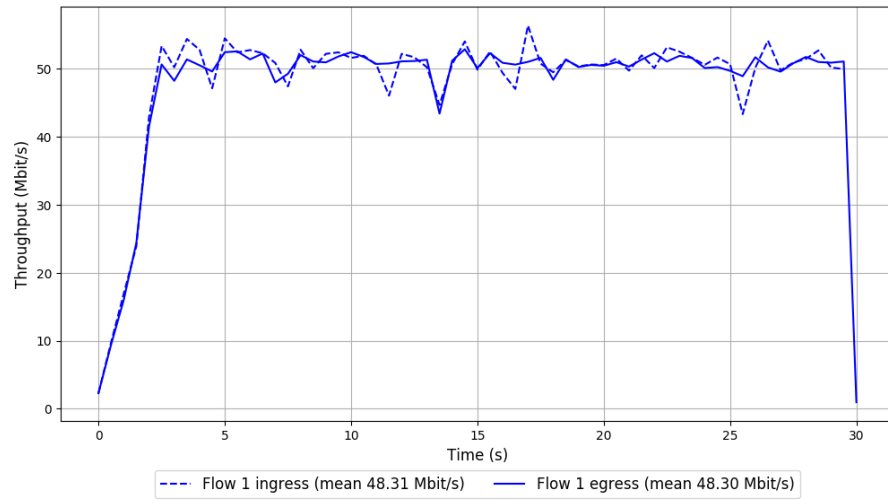


Run 1: Statistics of TCP Cubic

Start at: 2018-01-10 13:54:55
End at: 2018-01-10 13:55:25
Local clock offset: -1.3 ms
Remote clock offset: -4.933 ms

Below is generated by plot.py at 2018-01-10 14:43:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 145.712 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 48.30 Mbit/s
95th percentile per-packet one-way delay: 145.712 ms
Loss rate: 0.45%

Run 1: Report of TCP Cubic — Data Link

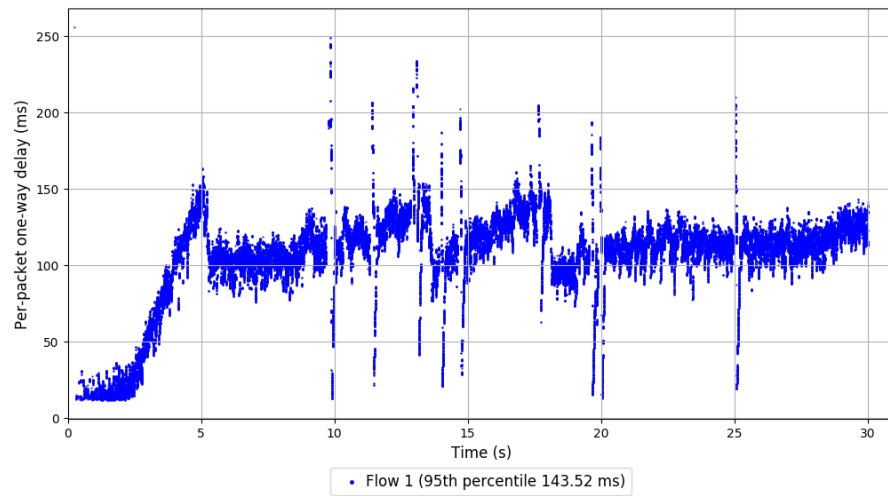
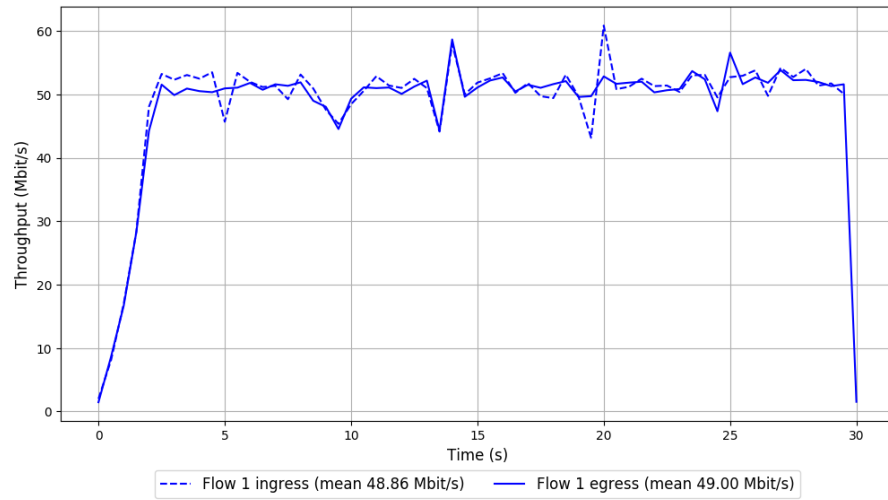


Run 2: Statistics of TCP Cubic

Start at: 2018-01-10 14:12:43
End at: 2018-01-10 14:13:13
Local clock offset: -1.436 ms
Remote clock offset: -4.948 ms

Below is generated by plot.py at 2018-01-10 14:43:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 49.00 Mbit/s
95th percentile per-packet one-way delay: 143.518 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 49.00 Mbit/s
95th percentile per-packet one-way delay: 143.518 ms
Loss rate: 0.51%

Run 2: Report of TCP Cubic — Data Link

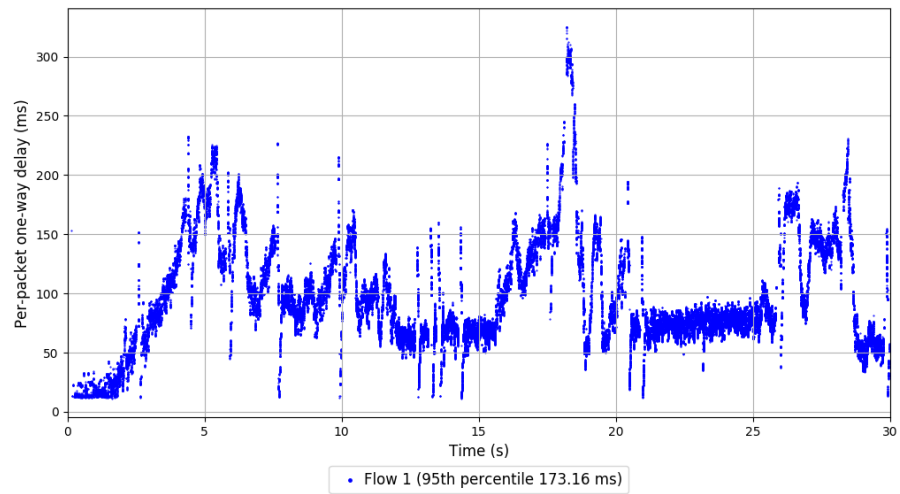
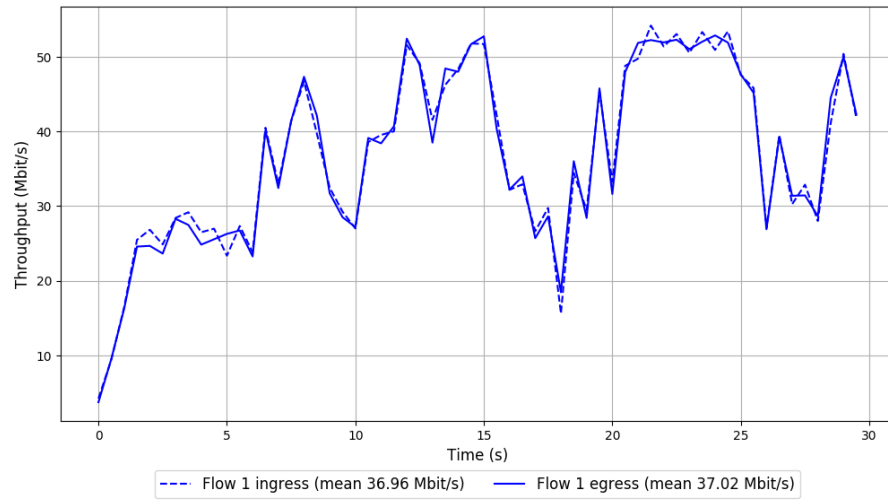


Run 3: Statistics of TCP Cubic

Start at: 2018-01-10 14:30:33
End at: 2018-01-10 14:31:03
Local clock offset: -1.656 ms
Remote clock offset: -4.965 ms

Below is generated by plot.py at 2018-01-10 14:43:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 37.02 Mbit/s
95th percentile per-packet one-way delay: 173.159 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 37.02 Mbit/s
95th percentile per-packet one-way delay: 173.159 ms
Loss rate: 0.26%

Run 3: Report of TCP Cubic — Data Link

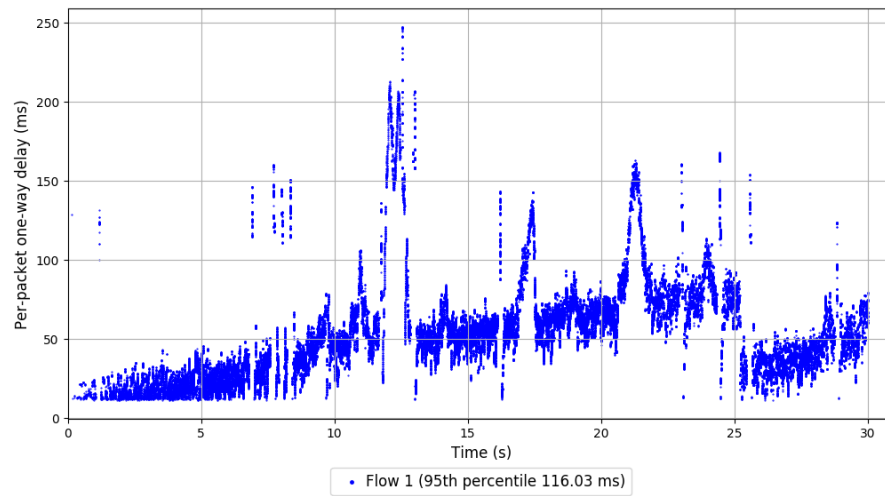
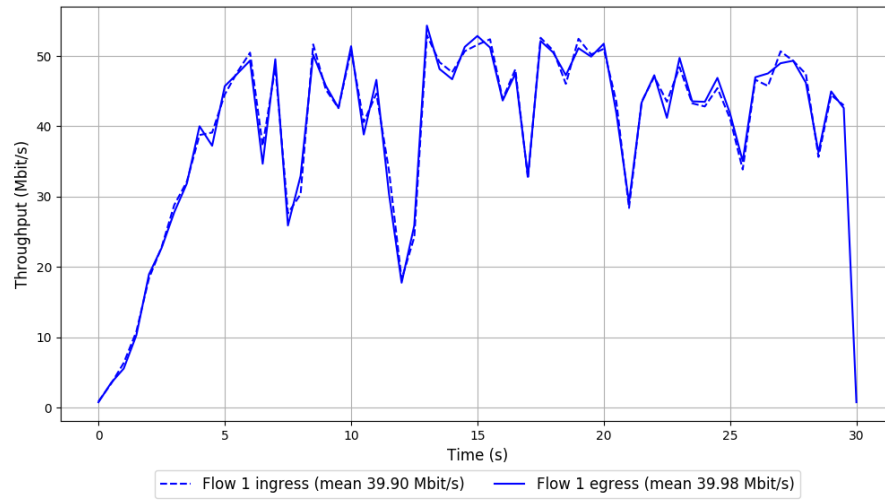


Run 1: Statistics of LEDBAT

Start at: 2018-01-10 13:50:09
End at: 2018-01-10 13:50:39
Local clock offset: -1.259 ms
Remote clock offset: -5.099 ms

Below is generated by plot.py at 2018-01-10 14:43:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 39.98 Mbit/s
95th percentile per-packet one-way delay: 116.035 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 39.98 Mbit/s
95th percentile per-packet one-way delay: 116.035 ms
Loss rate: 0.14%

Run 1: Report of LEDBAT — Data Link

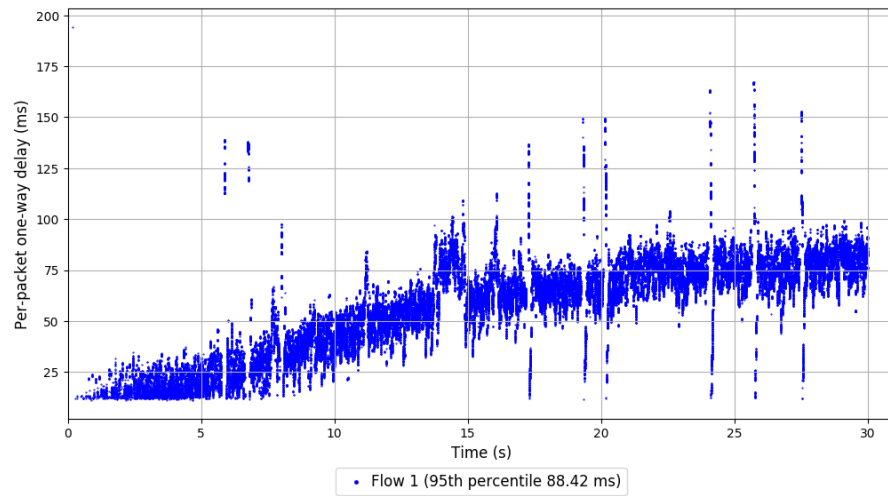
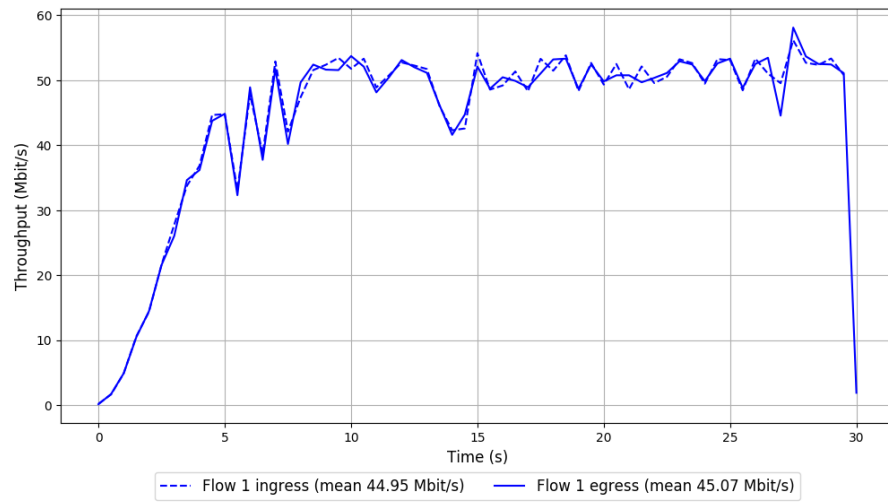


Run 2: Statistics of LEDBAT

Start at: 2018-01-10 14:07:56
End at: 2018-01-10 14:08:26
Local clock offset: -1.492 ms
Remote clock offset: -4.885 ms

Below is generated by plot.py at 2018-01-10 14:43:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 45.07 Mbit/s
95th percentile per-packet one-way delay: 88.420 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 45.07 Mbit/s
95th percentile per-packet one-way delay: 88.420 ms
Loss rate: 0.25%

Run 2: Report of LEDBAT — Data Link

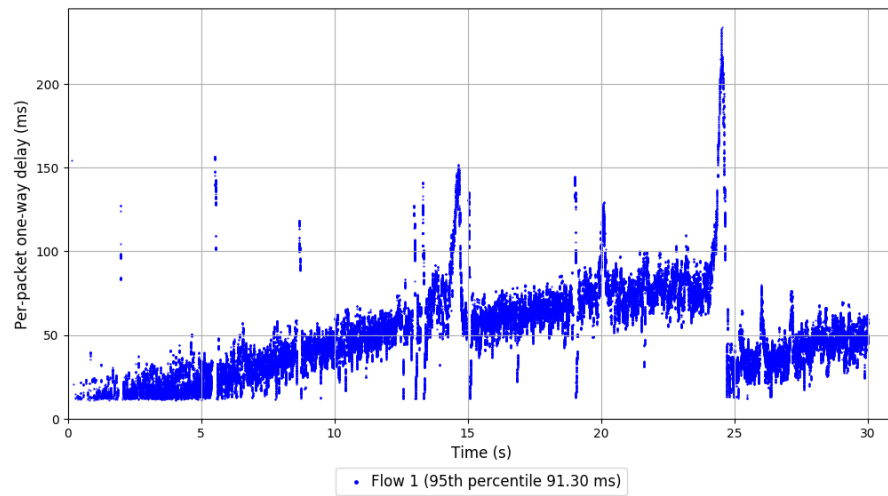
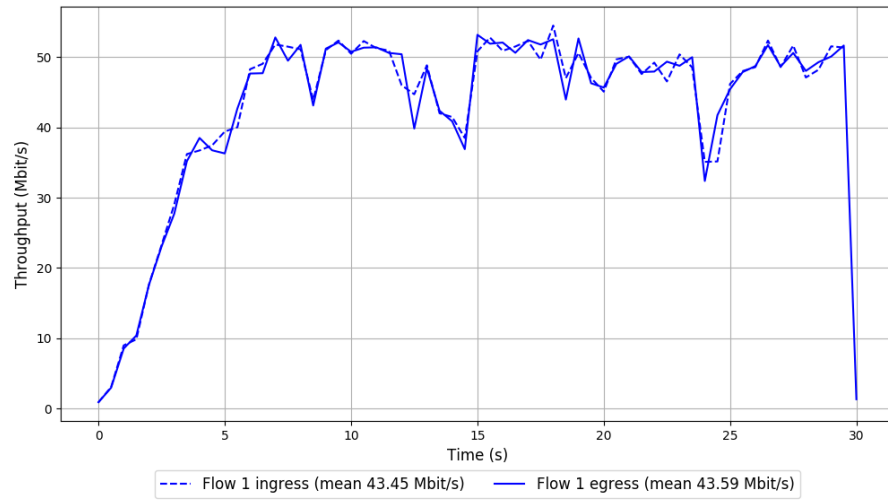


Run 3: Statistics of LEDBAT

Start at: 2018-01-10 14:25:47
End at: 2018-01-10 14:26:17
Local clock offset: -1.545 ms
Remote clock offset: -5.118 ms

Below is generated by plot.py at 2018-01-10 14:44:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 43.59 Mbit/s
95th percentile per-packet one-way delay: 91.298 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 43.59 Mbit/s
95th percentile per-packet one-way delay: 91.298 ms
Loss rate: 0.12%

Run 3: Report of LEDBAT — Data Link

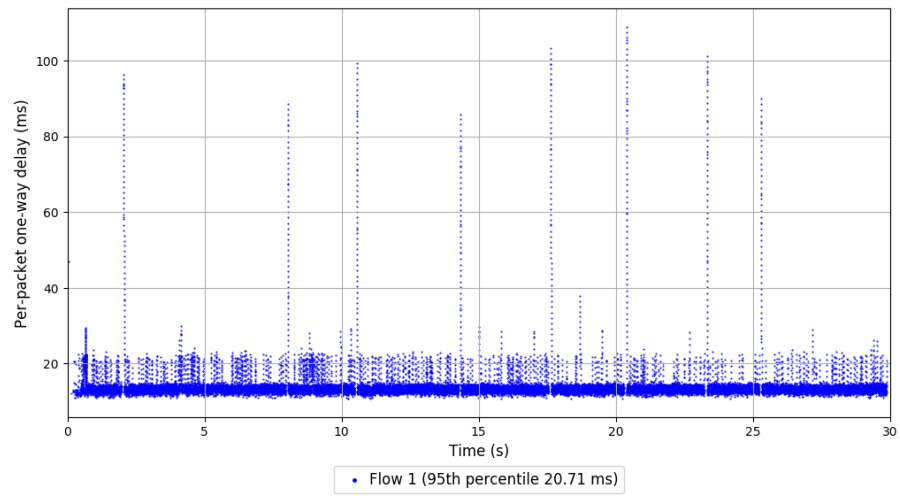
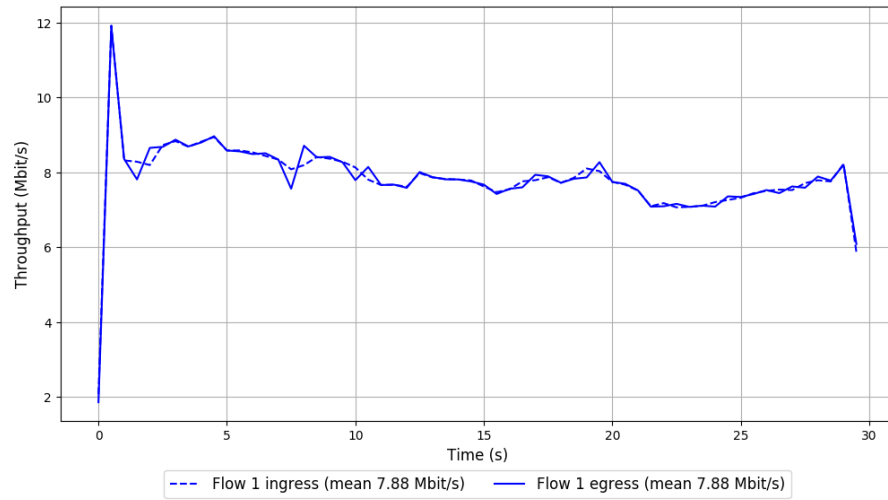


Run 1: Statistics of PCC

Start at: 2018-01-10 13:46:36
End at: 2018-01-10 13:47:06
Local clock offset: -1.279 ms
Remote clock offset: -5.122 ms

Below is generated by plot.py at 2018-01-10 14:44:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 20.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 20.706 ms
Loss rate: 0.00%

Run 1: Report of PCC — Data Link

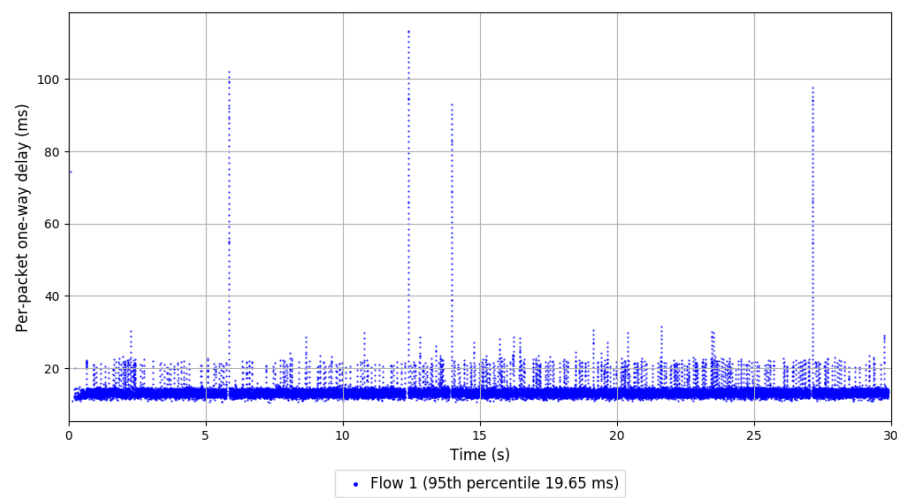
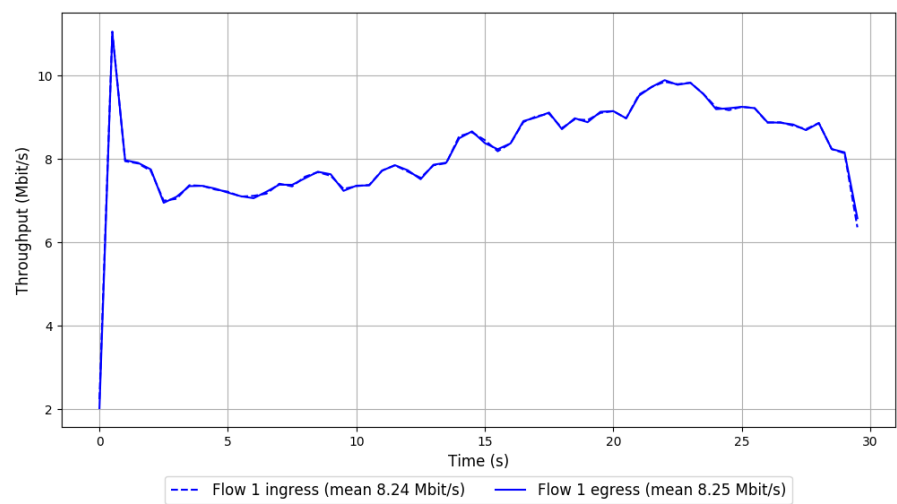


Run 2: Statistics of PCC

Start at: 2018-01-10 14:04:22
End at: 2018-01-10 14:04:52
Local clock offset: -1.333 ms
Remote clock offset: -4.814 ms

Below is generated by plot.py at 2018-01-10 14:44:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 8.25 Mbit/s
95th percentile per-packet one-way delay: 19.647 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 8.25 Mbit/s
95th percentile per-packet one-way delay: 19.647 ms
Loss rate: 0.00%

Run 2: Report of PCC — Data Link

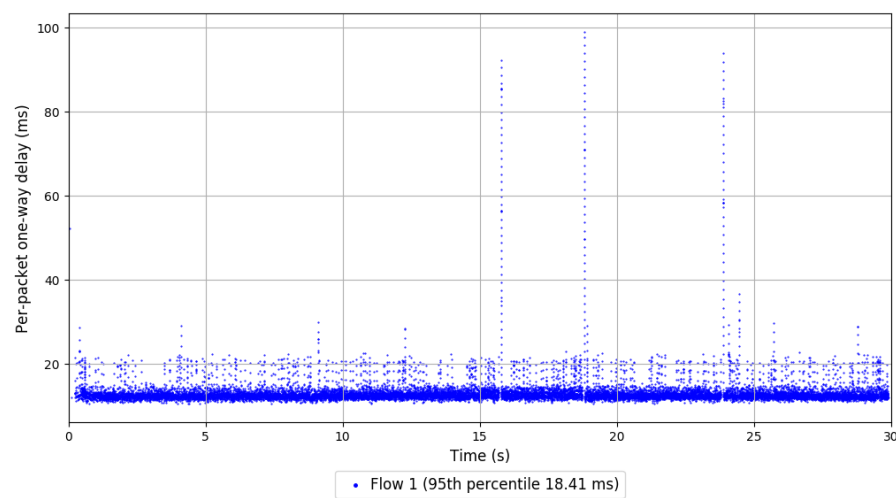
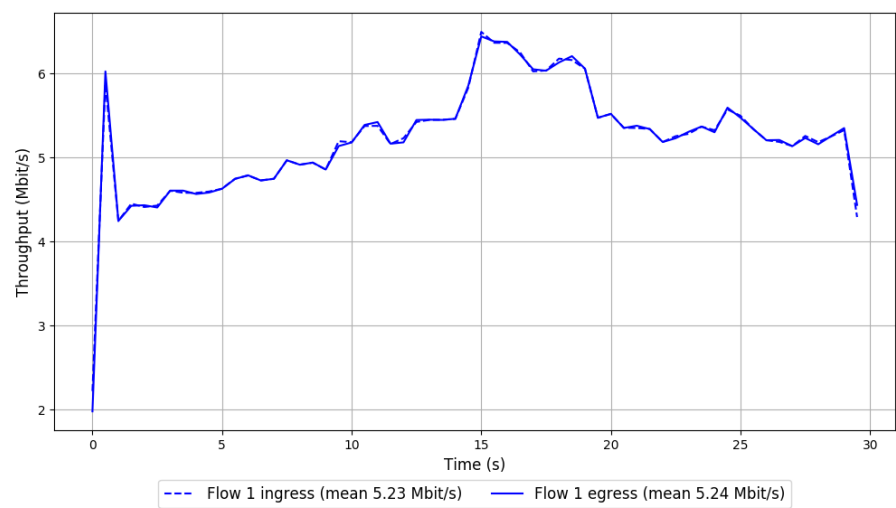


Run 3: Statistics of PCC

Start at: 2018-01-10 14:22:13
End at: 2018-01-10 14:22:43
Local clock offset: -1.571 ms
Remote clock offset: -5.296 ms

Below is generated by plot.py at 2018-01-10 14:44:18
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 18.407 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 18.407 ms
Loss rate: 0.00%

Run 3: Report of PCC — Data Link



Run 1: Statistics of QUIC Cubic

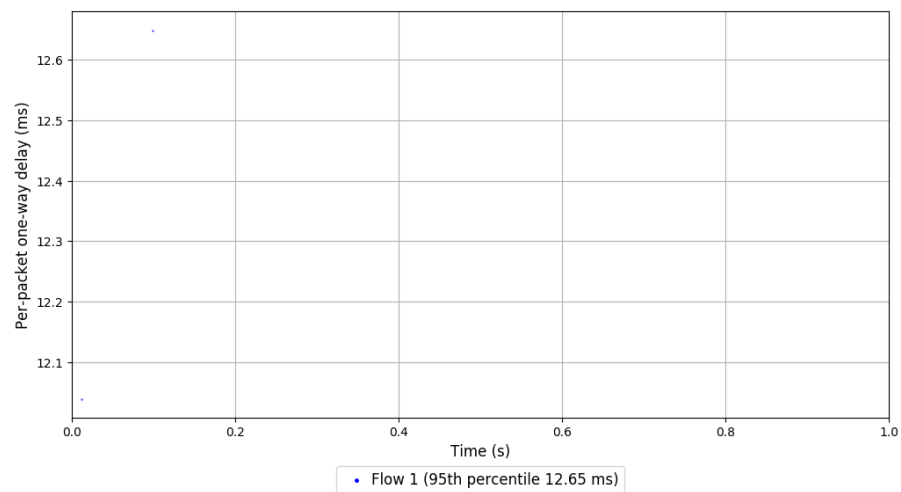
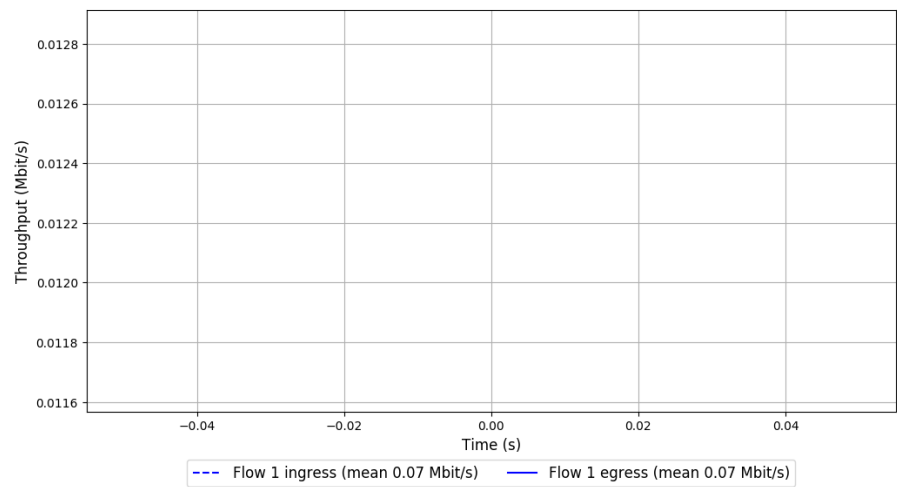
Start at: 2018-01-10 13:58:28

End at: 2018-01-10 13:58:59

Local clock offset: -1.296 ms

Remote clock offset: -4.831 ms

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-01-10 14:16:16

End at: 2018-01-10 14:16:46

Local clock offset: -1.517 ms

Remote clock offset: -5.127 ms

Below is generated by plot.py at 2018-01-10 14:44:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 43.78 Mbit/s

95th percentile per-packet one-way delay: 88.349 ms

Loss rate: 0.26%

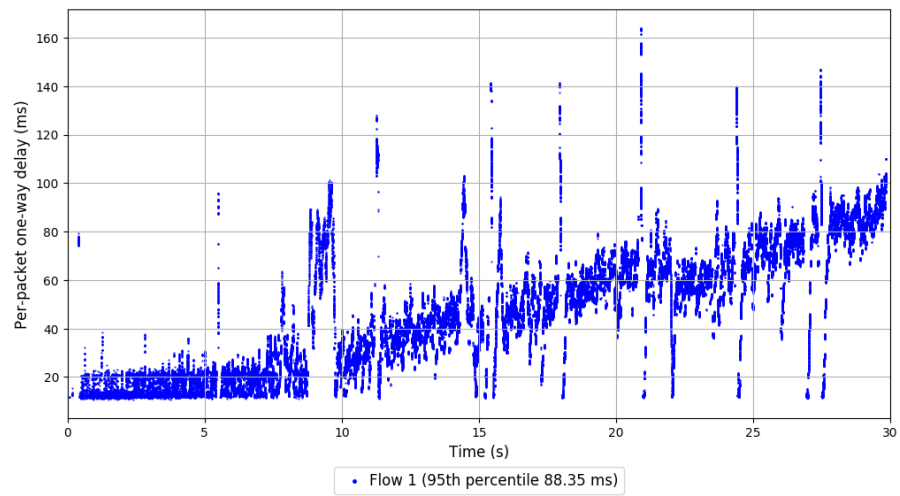
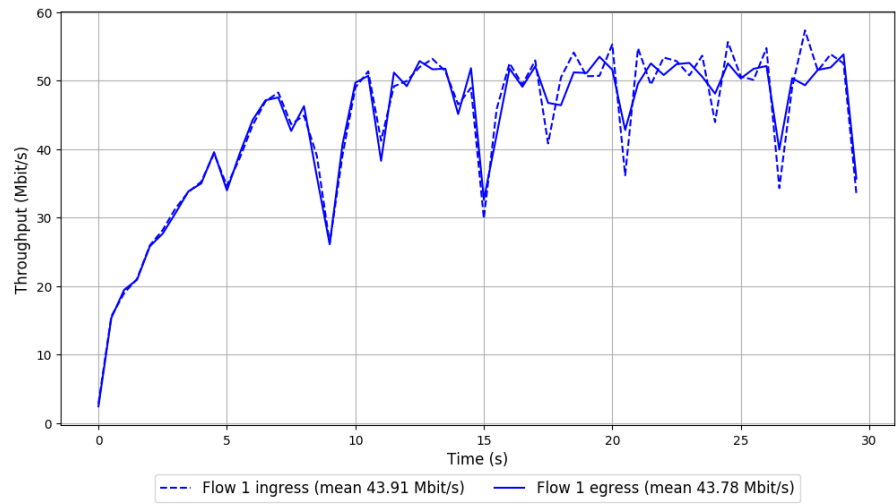
-- Flow 1:

Average throughput: 43.78 Mbit/s

95th percentile per-packet one-way delay: 88.349 ms

Loss rate: 0.26%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-01-10 14:34:06

End at: 2018-01-10 14:34:36

Local clock offset: -1.551 ms

Remote clock offset: -4.892 ms

Below is generated by plot.py at 2018-01-10 14:44:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 34.22 Mbit/s

95th percentile per-packet one-way delay: 168.897 ms

Loss rate: 0.24%

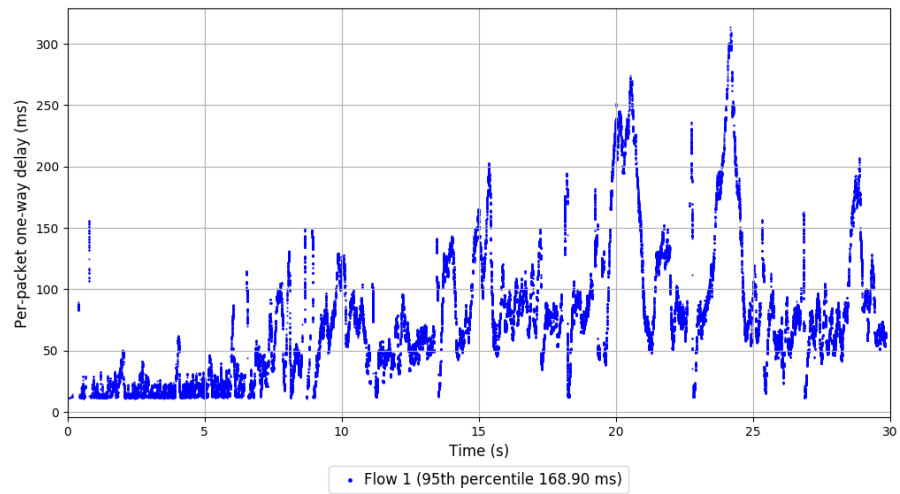
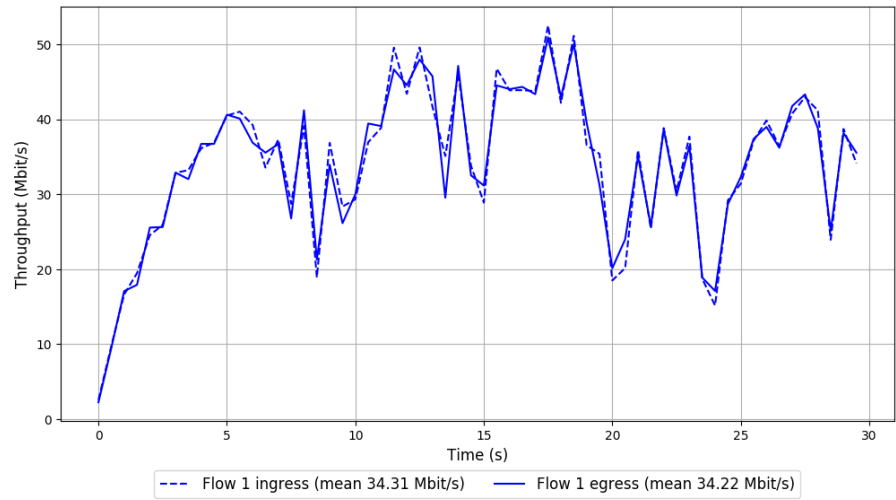
-- Flow 1:

Average throughput: 34.22 Mbit/s

95th percentile per-packet one-way delay: 168.897 ms

Loss rate: 0.24%

Run 3: Report of QUIC Cubic — Data Link

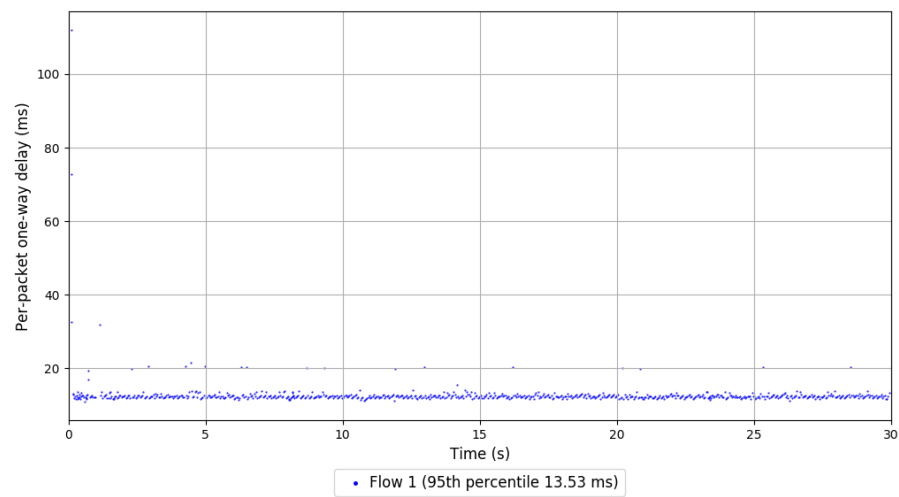
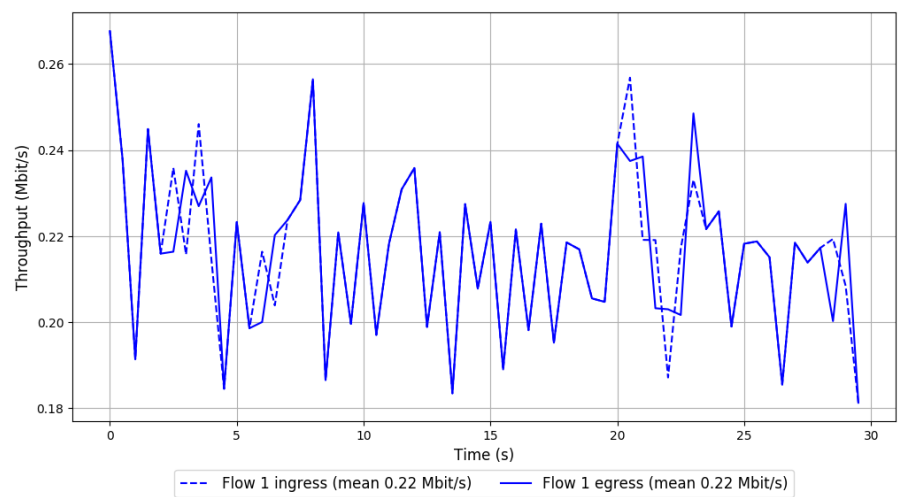


Run 1: Statistics of SCReAM

Start at: 2018-01-10 14:03:12
End at: 2018-01-10 14:03:42
Local clock offset: -1.324 ms
Remote clock offset: -4.734 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.534 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.534 ms
Loss rate: 0.00%

Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-01-10 14:21:03

End at: 2018-01-10 14:21:33

Local clock offset: -1.574 ms

Remote clock offset: -5.24 ms

Below is generated by plot.py at 2018-01-10 14:44:42

Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 13.184 ms

Loss rate: 0.00%

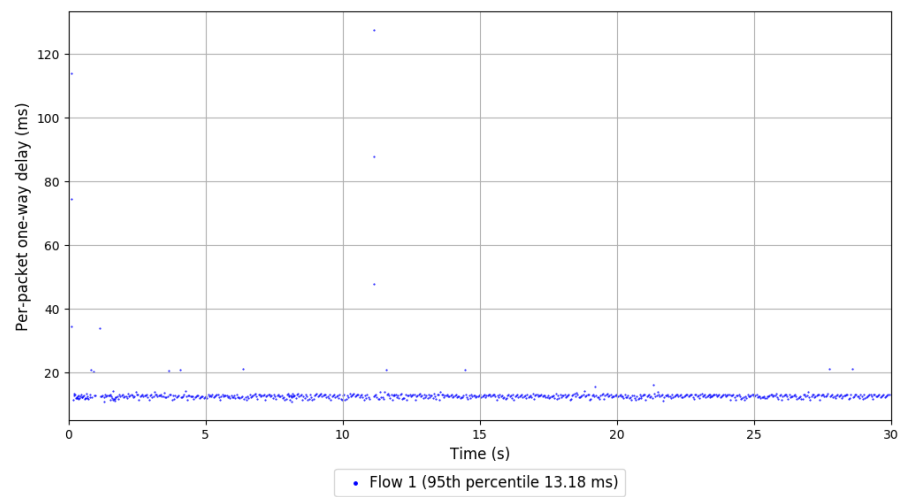
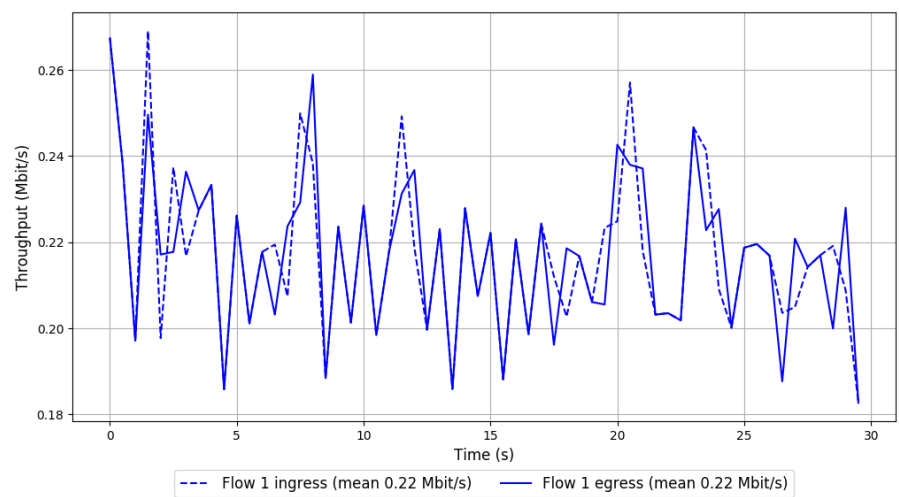
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 13.184 ms

Loss rate: 0.00%

Run 2: Report of SReAM — Data Link

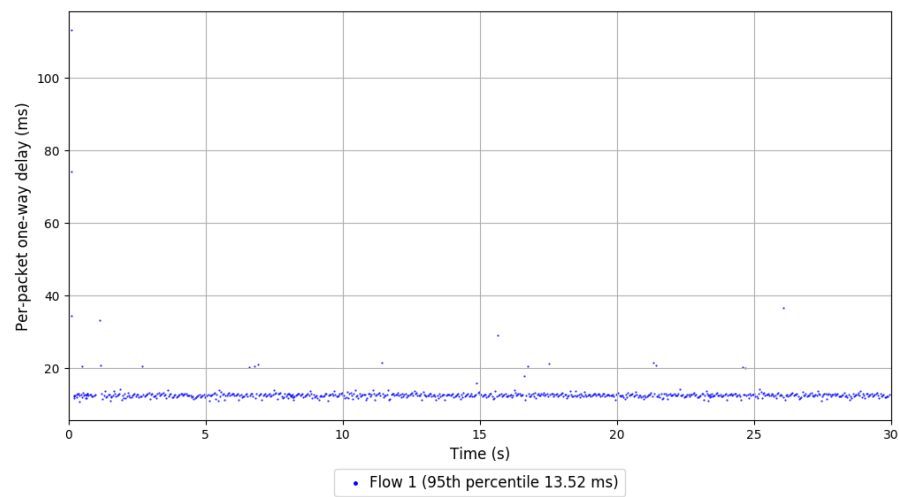
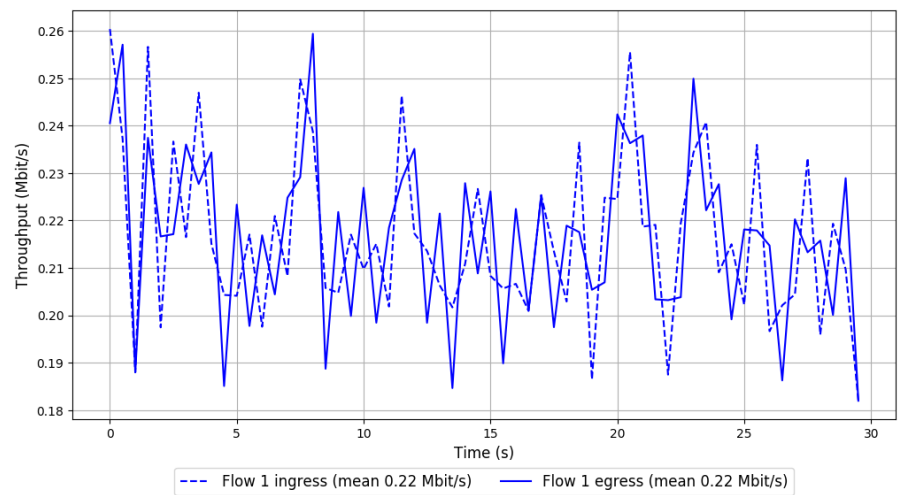


Run 3: Statistics of SCReAM

Start at: 2018-01-10 14:38:51
End at: 2018-01-10 14:39:21
Local clock offset: -1.598 ms
Remote clock offset: -4.756 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.524 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.524 ms
Loss rate: 0.00%

Run 3: Report of SReAM — Data Link

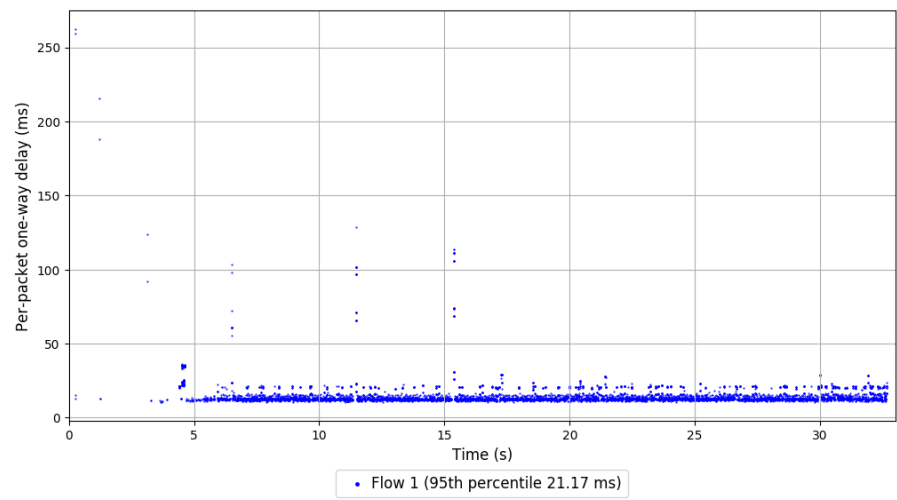
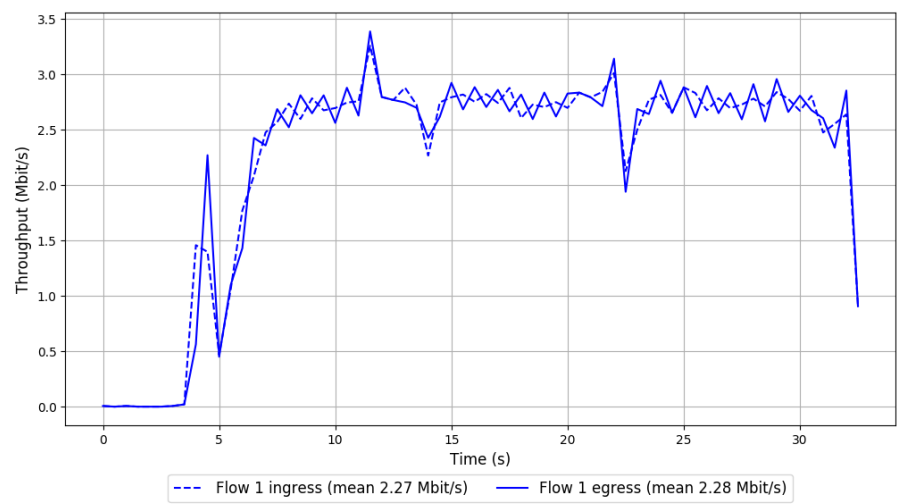


Run 1: Statistics of WebRTC media

Start at: 2018-01-10 14:00:51
End at: 2018-01-10 14:01:21
Local clock offset: -1.398 ms
Remote clock offset: -4.795 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 21.172 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.28 Mbit/s
95th percentile per-packet one-way delay: 21.172 ms
Loss rate: 0.00%

Run 1: Report of WebRTC media — Data Link

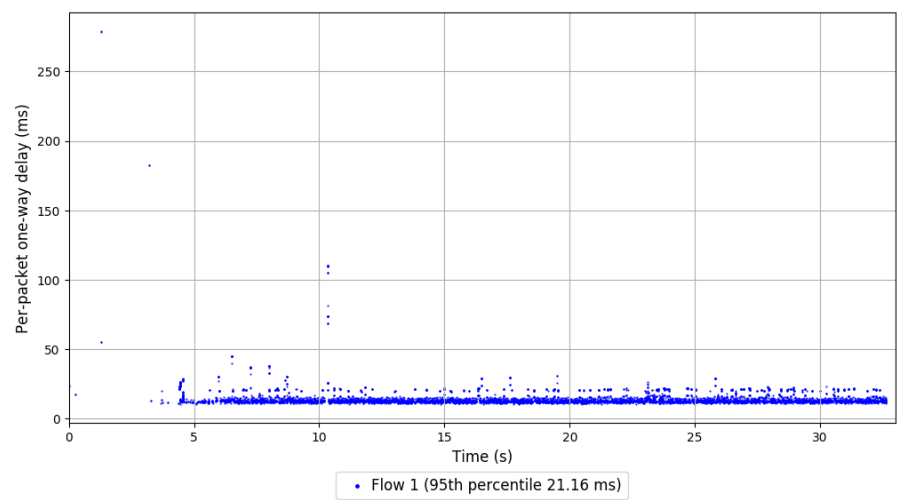
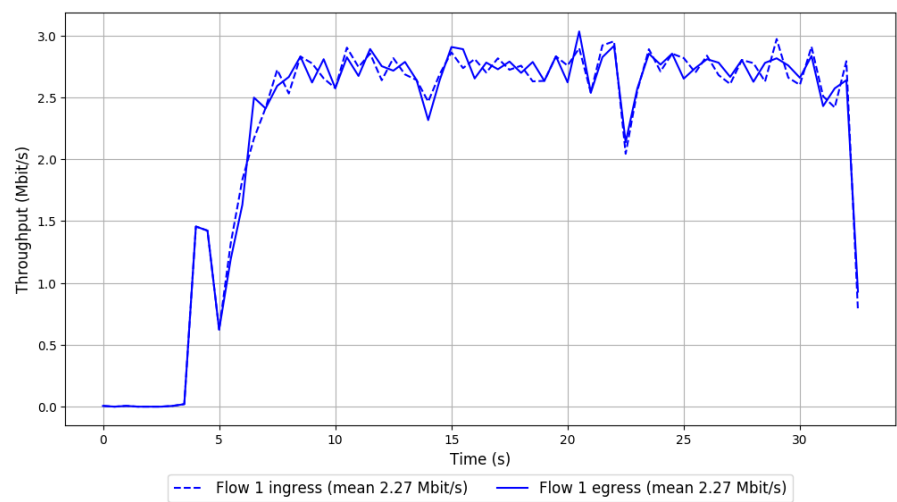


Run 2: Statistics of WebRTC media

Start at: 2018-01-10 14:18:41
End at: 2018-01-10 14:19:11
Local clock offset: -1.52 ms
Remote clock offset: -5.133 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 21.158 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 21.158 ms
Loss rate: 0.00%

Run 2: Report of WebRTC media — Data Link

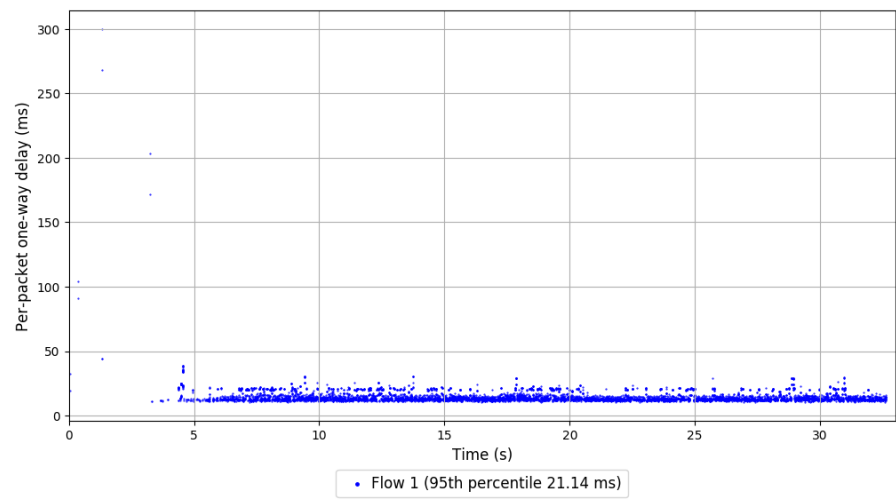
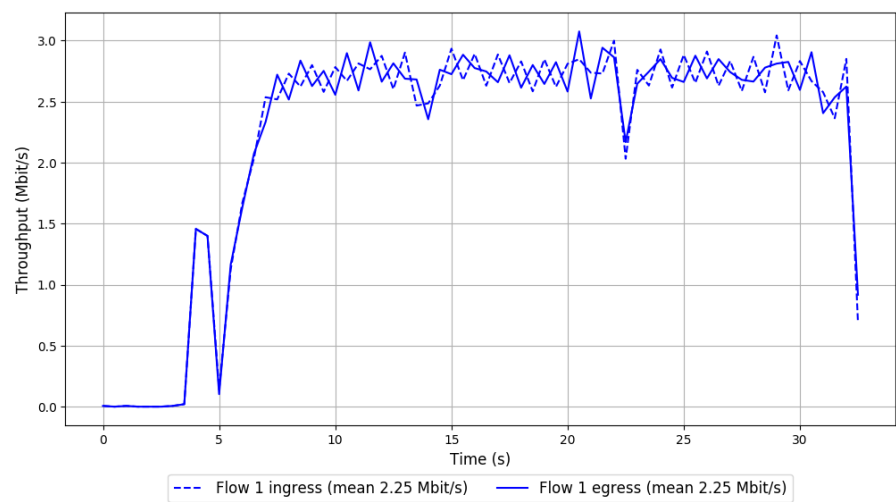


Run 3: Statistics of WebRTC media

Start at: 2018-01-10 14:36:30
End at: 2018-01-10 14:37:00
Local clock offset: -1.596 ms
Remote clock offset: -4.774 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 21.145 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 21.145 ms
Loss rate: 0.00%

Run 3: Report of WebRTC media — Data Link

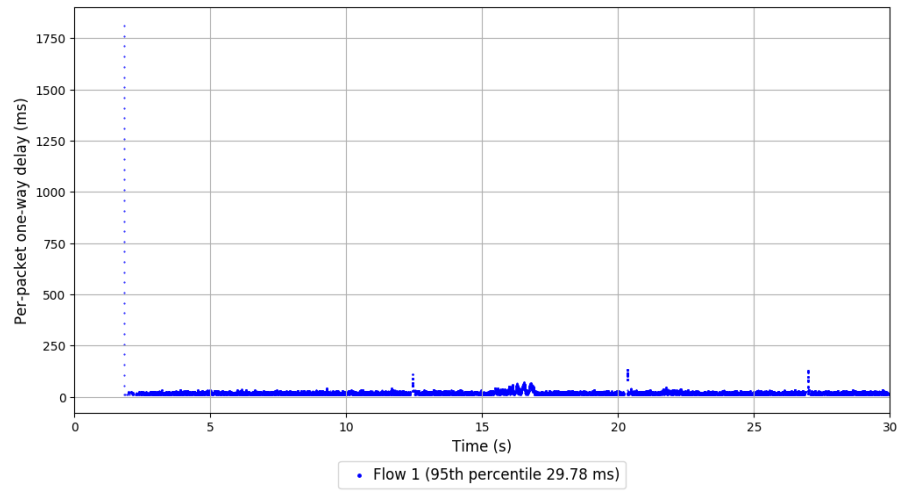
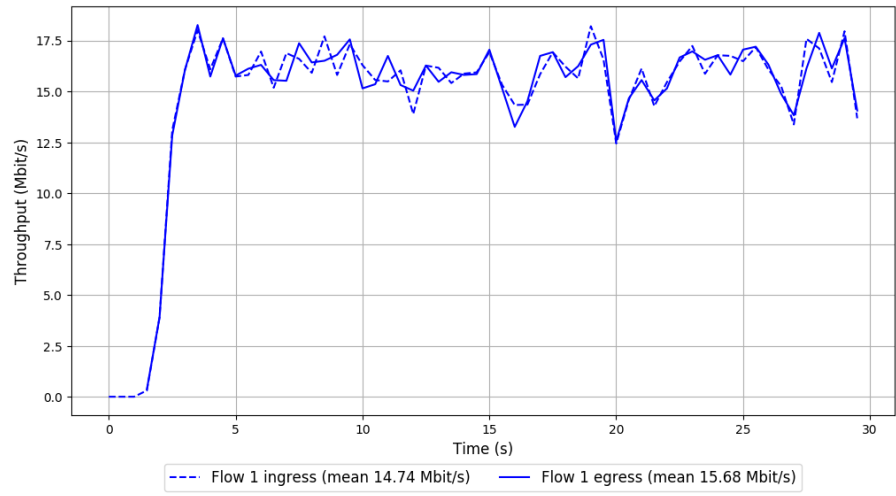


Run 1: Statistics of Sprout

Start at: 2018-01-10 13:56:07
End at: 2018-01-10 13:56:37
Local clock offset: -1.305 ms
Remote clock offset: -4.941 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.68 Mbit/s
95th percentile per-packet one-way delay: 29.779 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.68 Mbit/s
95th percentile per-packet one-way delay: 29.779 ms
Loss rate: 0.00%

Run 1: Report of Sprout — Data Link

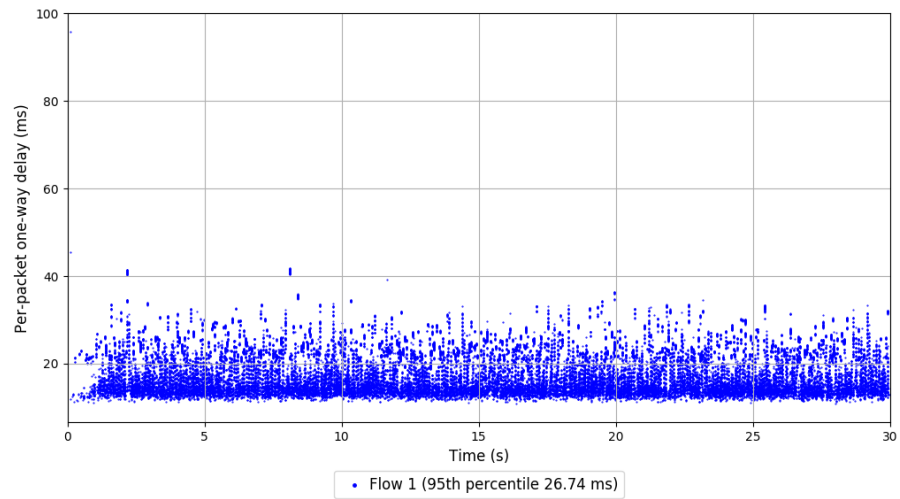
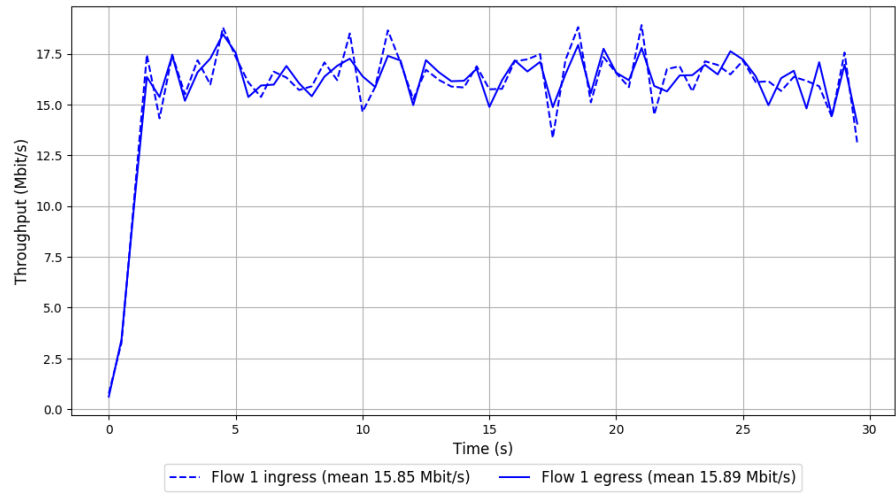


Run 2: Statistics of Sprout

Start at: 2018-01-10 14:13:55
End at: 2018-01-10 14:14:25
Local clock offset: -1.448 ms
Remote clock offset: -5.018 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.89 Mbit/s
95th percentile per-packet one-way delay: 26.739 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.89 Mbit/s
95th percentile per-packet one-way delay: 26.739 ms
Loss rate: 0.00%

Run 2: Report of Sprout — Data Link

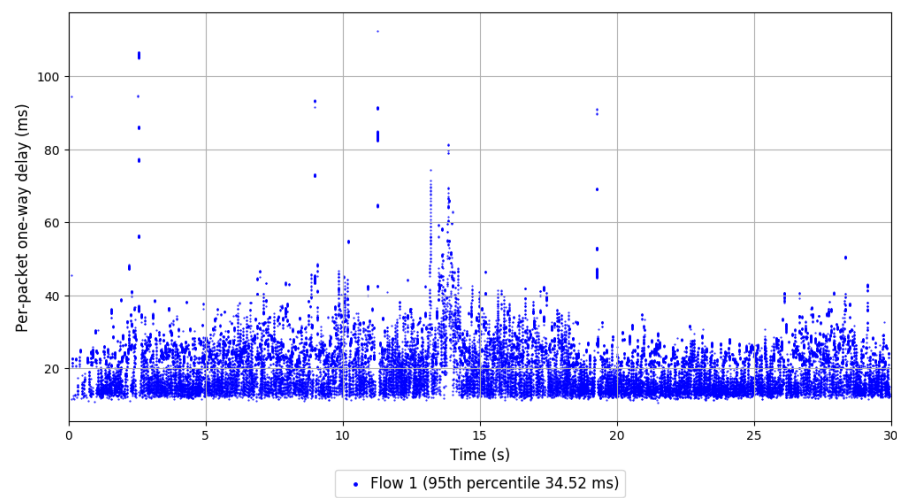
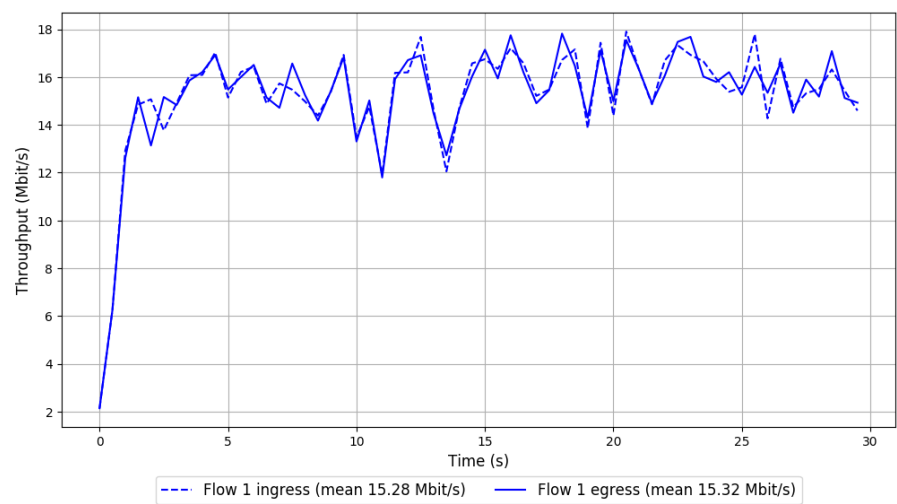


Run 3: Statistics of Sprout

Start at: 2018-01-10 14:31:45
End at: 2018-01-10 14:32:15
Local clock offset: -1.675 ms
Remote clock offset: -4.987 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.32 Mbit/s
95th percentile per-packet one-way delay: 34.521 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.32 Mbit/s
95th percentile per-packet one-way delay: 34.521 ms
Loss rate: 0.00%

Run 3: Report of Sprout — Data Link

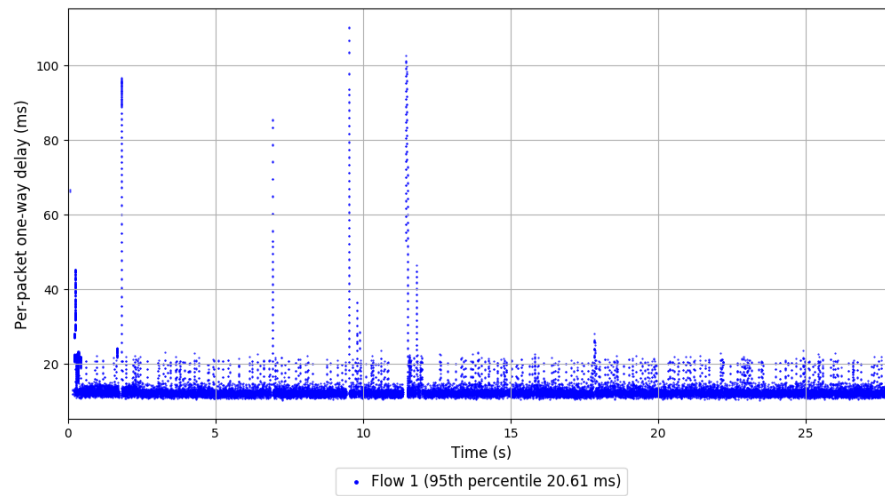
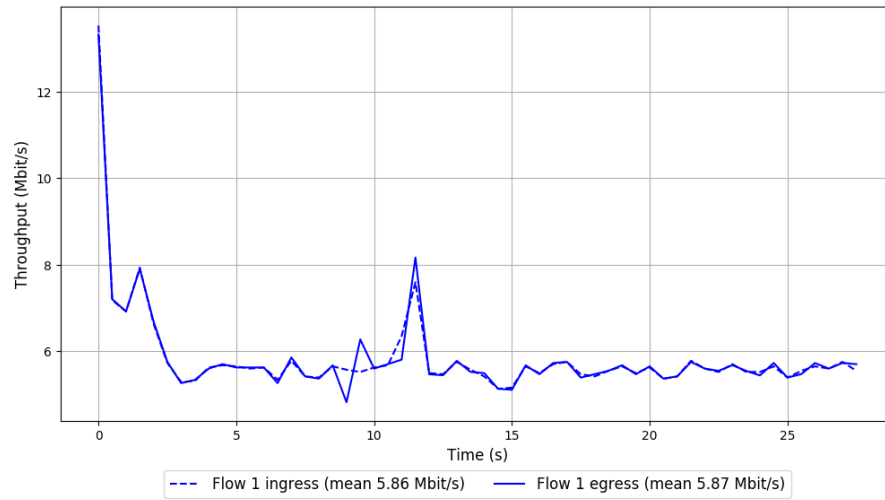


Run 1: Statistics of TaoVA-100x

Start at: 2018-01-10 13:57:18
End at: 2018-01-10 13:57:48
Local clock offset: -1.287 ms
Remote clock offset: -4.879 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.87 Mbit/s
95th percentile per-packet one-way delay: 20.607 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.87 Mbit/s
95th percentile per-packet one-way delay: 20.607 ms
Loss rate: 0.00%

Run 1: Report of TaoVA-100x — Data Link

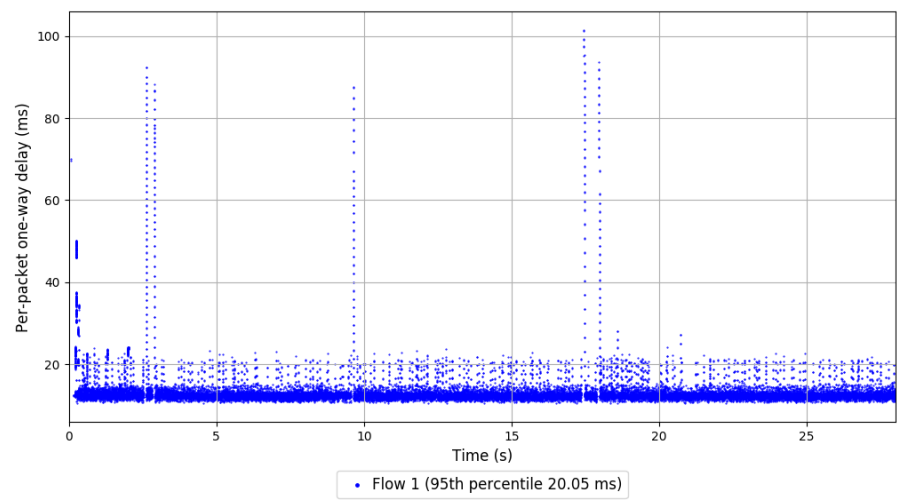
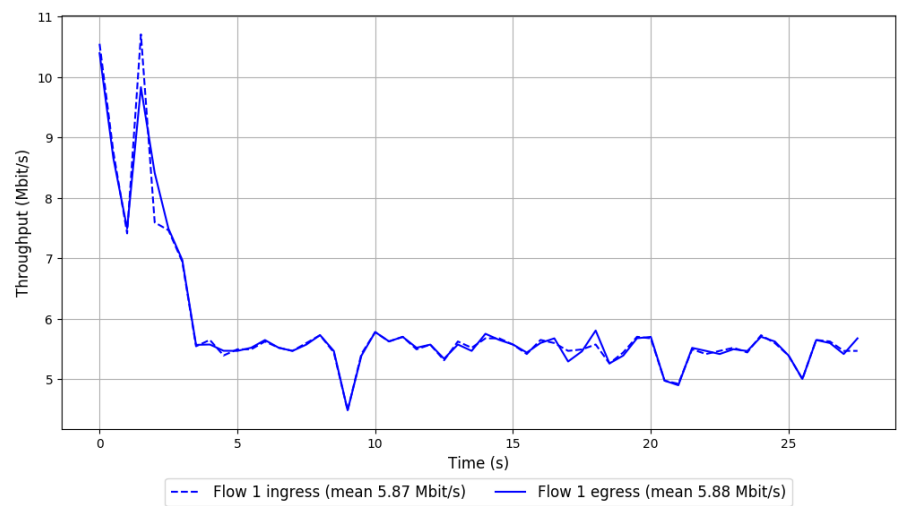


Run 2: Statistics of TaoVA-100x

Start at: 2018-01-10 14:15:06
End at: 2018-01-10 14:15:36
Local clock offset: -1.511 ms
Remote clock offset: -5.096 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 20.050 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 20.050 ms
Loss rate: 0.00%

Run 2: Report of TaoVA-100x — Data Link

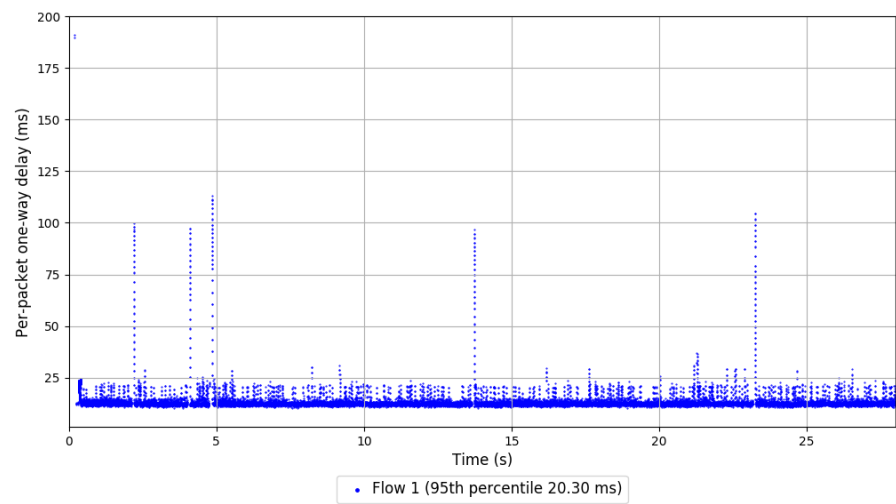
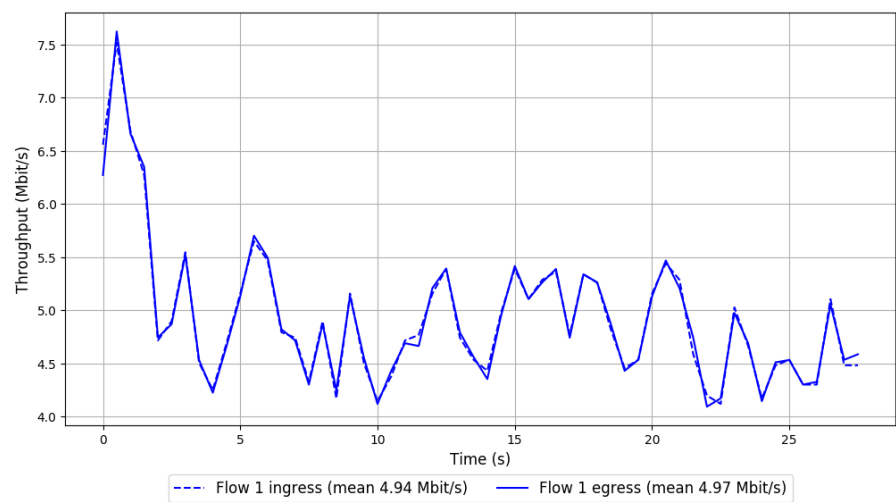


Run 3: Statistics of TaoVA-100x

Start at: 2018-01-10 14:32:55
End at: 2018-01-10 14:33:25
Local clock offset: -1.584 ms
Remote clock offset: -4.855 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 20.303 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.97 Mbit/s
95th percentile per-packet one-way delay: 20.303 ms
Loss rate: 0.00%

Run 3: Report of TaoVA-100x — Data Link

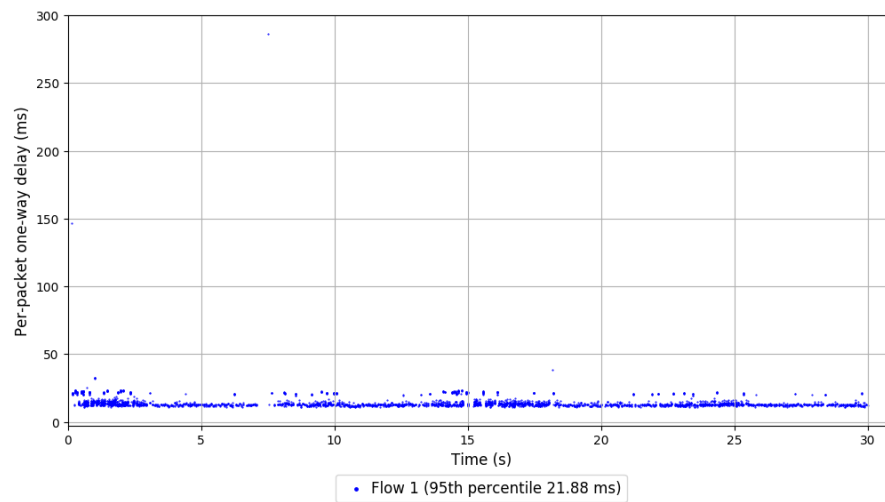
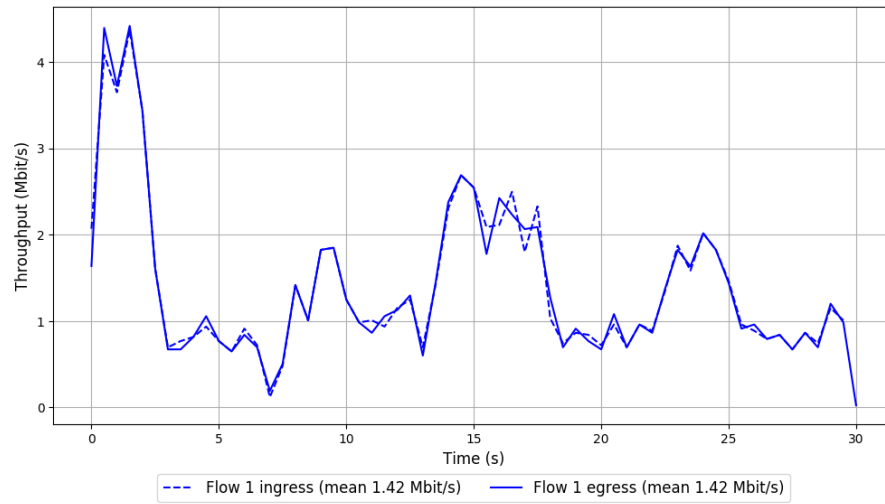


Run 1: Statistics of TCP Vegas

Start at: 2018-01-10 13:51:21
End at: 2018-01-10 13:51:51
Local clock offset: -1.298 ms
Remote clock offset: -5.104 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 21.878 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 21.878 ms
Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link

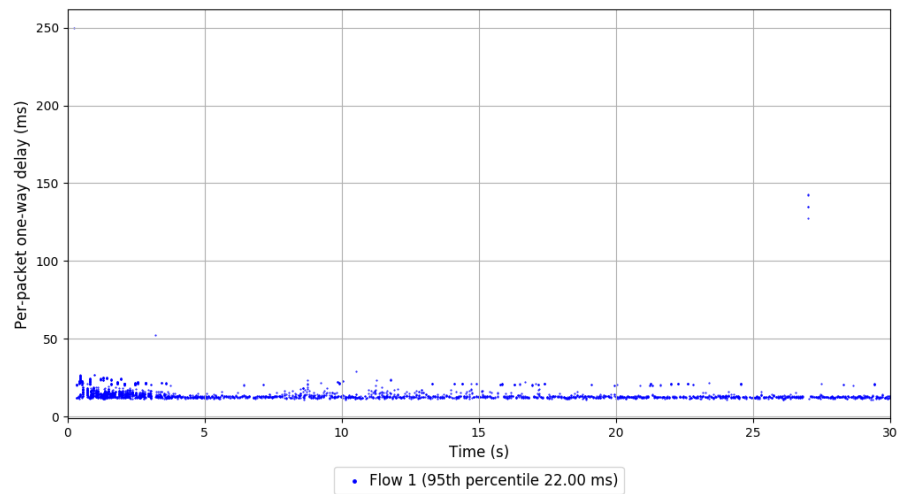
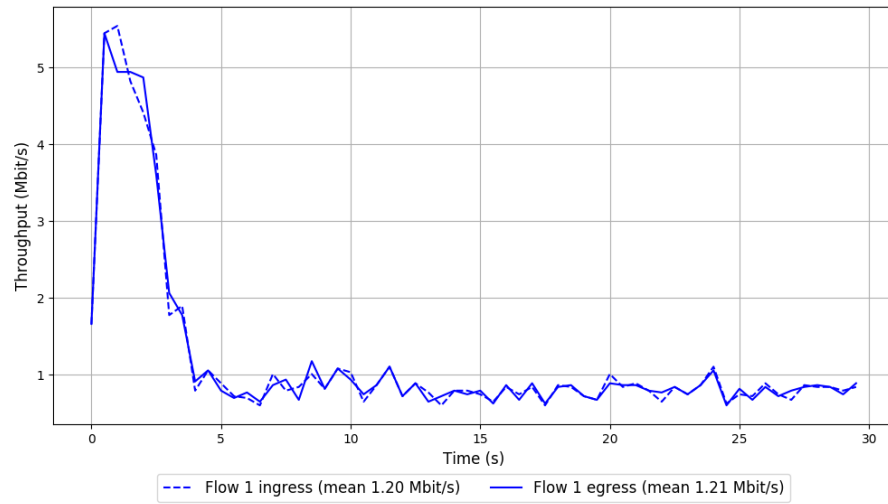


Run 2: Statistics of TCP Vegas

Start at: 2018-01-10 14:09:09
End at: 2018-01-10 14:09:39
Local clock offset: -1.392 ms
Remote clock offset: -4.935 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 22.003 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.21 Mbit/s
95th percentile per-packet one-way delay: 22.003 ms
Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link

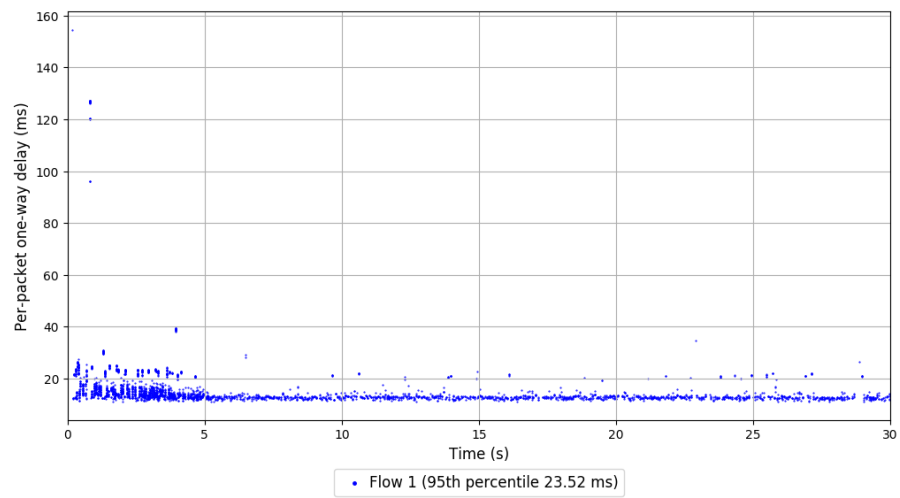
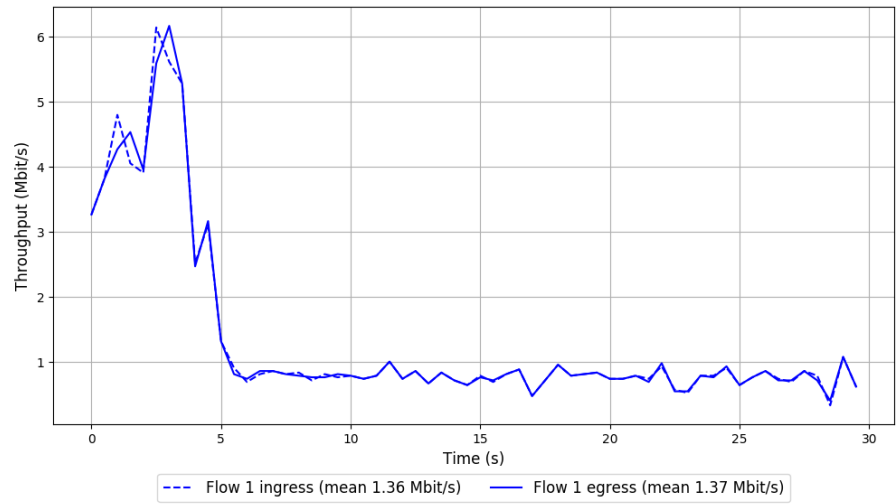


Run 3: Statistics of TCP Vegas

Start at: 2018-01-10 14:26:59
End at: 2018-01-10 14:27:29
Local clock offset: -1.643 ms
Remote clock offset: -5.149 ms

Below is generated by plot.py at 2018-01-10 14:44:42
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 23.520 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 23.520 ms
Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link

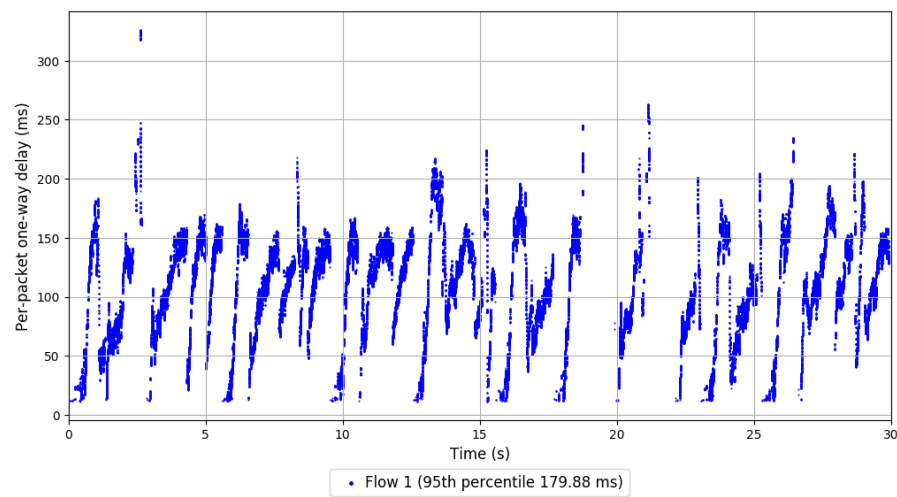
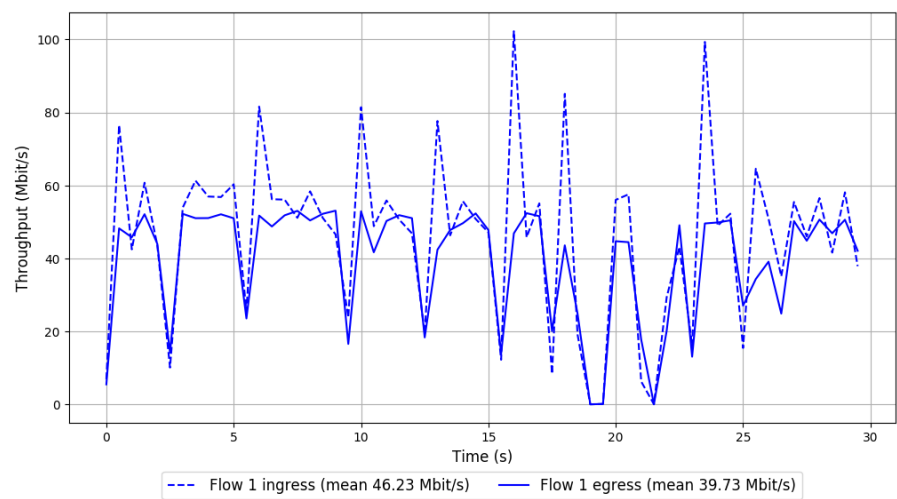


Run 1: Statistics of Verus

Start at: 2018-01-10 13:47:46
End at: 2018-01-10 13:48:16
Local clock offset: -1.267 ms
Remote clock offset: -5.124 ms

Below is generated by plot.py at 2018-01-10 14:45:23
Datalink statistics
-- Total of 1 flow:
Average throughput: 39.73 Mbit/s
95th percentile per-packet one-way delay: 179.879 ms
Loss rate: 13.86%
-- Flow 1:
Average throughput: 39.73 Mbit/s
95th percentile per-packet one-way delay: 179.879 ms
Loss rate: 13.86%

Run 1: Report of Verus — Data Link

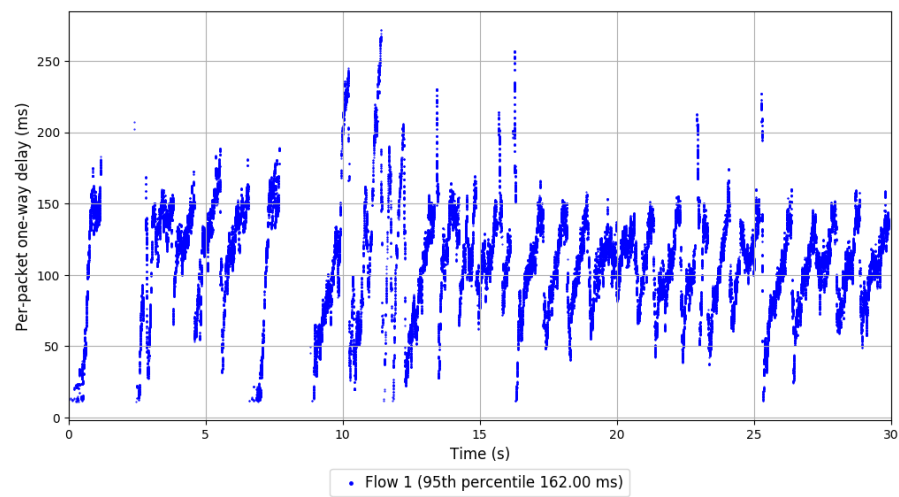
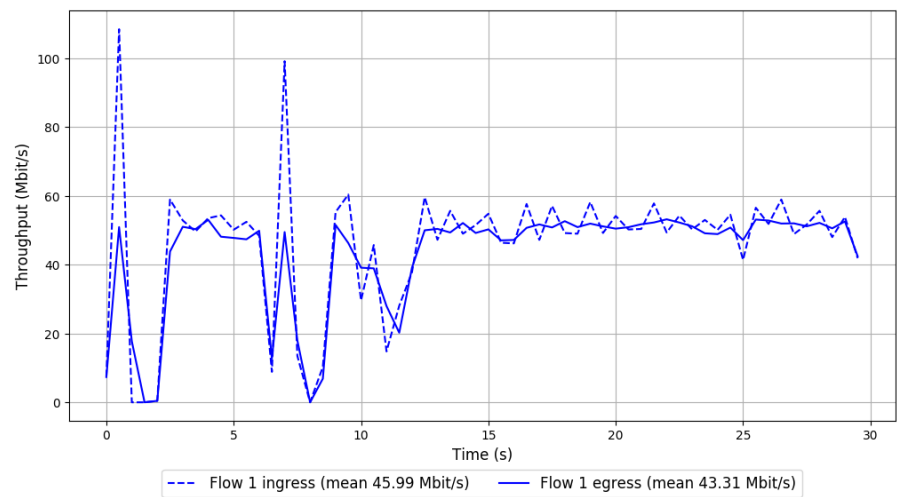


Run 2: Statistics of Verus

Start at: 2018-01-10 14:05:33
End at: 2018-01-10 14:06:03
Local clock offset: -1.339 ms
Remote clock offset: -4.834 ms

Below is generated by plot.py at 2018-01-10 14:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 43.31 Mbit/s
95th percentile per-packet one-way delay: 161.997 ms
Loss rate: 5.84%
-- Flow 1:
Average throughput: 43.31 Mbit/s
95th percentile per-packet one-way delay: 161.997 ms
Loss rate: 5.84%

Run 2: Report of Verus — Data Link

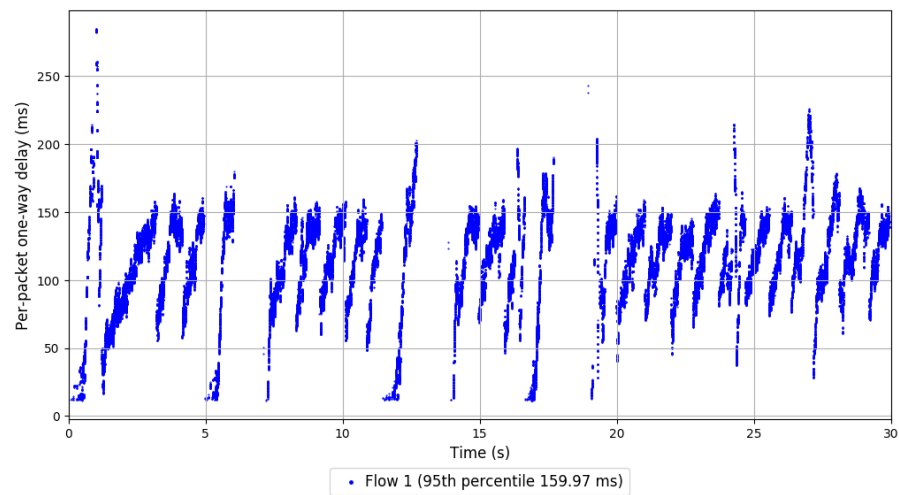
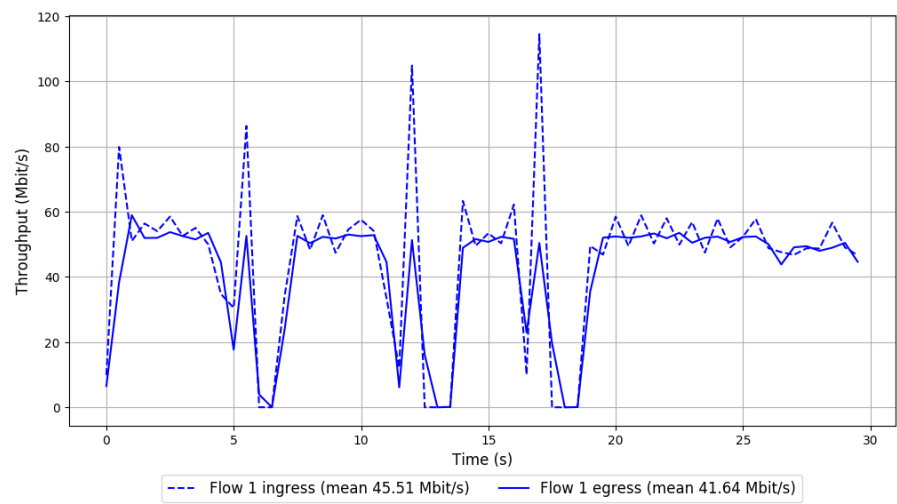


Run 3: Statistics of Verus

Start at: 2018-01-10 14:23:24
End at: 2018-01-10 14:23:54
Local clock offset: -1.658 ms
Remote clock offset: -5.207 ms

Below is generated by plot.py at 2018-01-10 14:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 41.64 Mbit/s
95th percentile per-packet one-way delay: 159.975 ms
Loss rate: 8.49%
-- Flow 1:
Average throughput: 41.64 Mbit/s
95th percentile per-packet one-way delay: 159.975 ms
Loss rate: 8.49%

Run 3: Report of Verus — Data Link

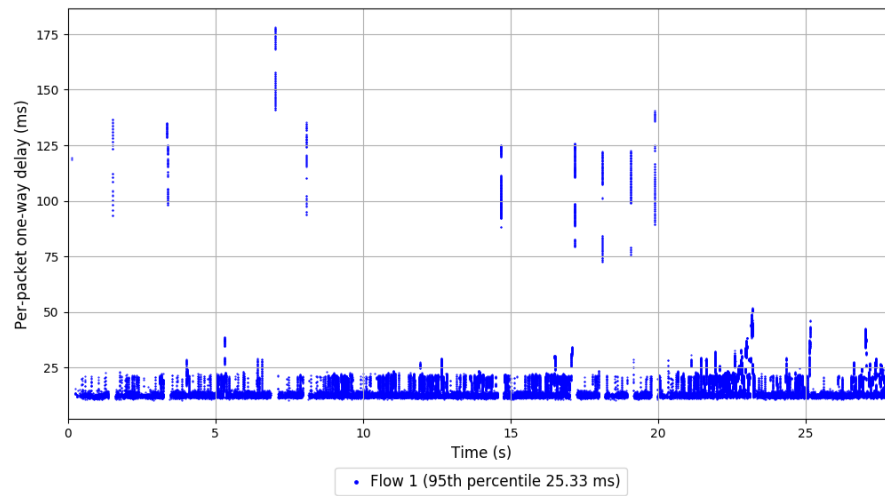
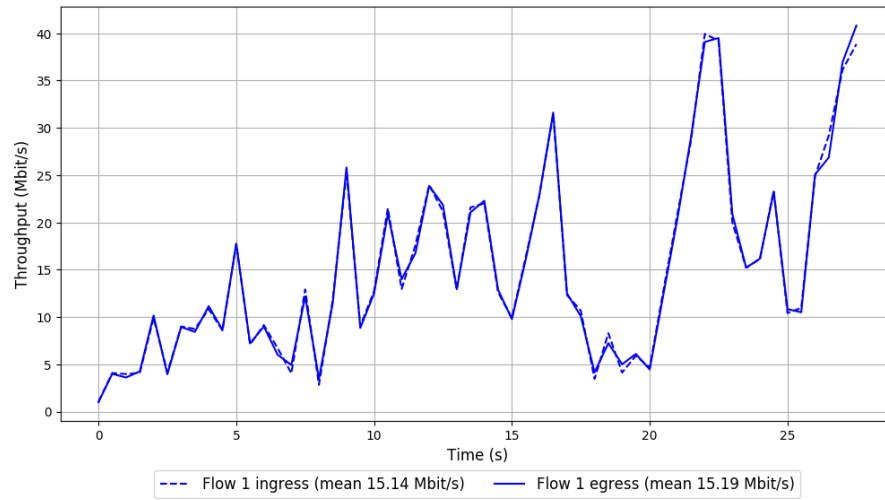


Run 1: Statistics of Copa

Start at: 2018-01-10 13:53:43
End at: 2018-01-10 13:54:13
Local clock offset: -1.291 ms
Remote clock offset: -5.019 ms

Below is generated by plot.py at 2018-01-10 14:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 15.19 Mbit/s
95th percentile per-packet one-way delay: 25.331 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.19 Mbit/s
95th percentile per-packet one-way delay: 25.331 ms
Loss rate: 0.00%

Run 1: Report of Copa — Data Link

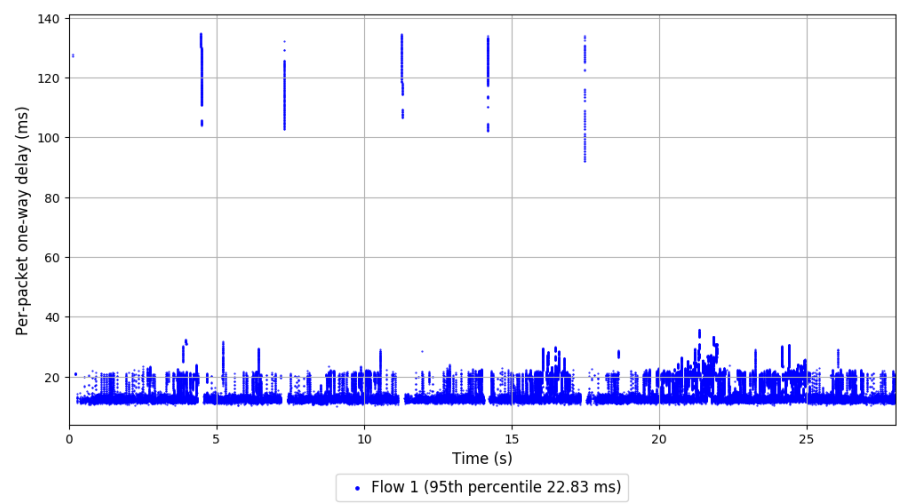
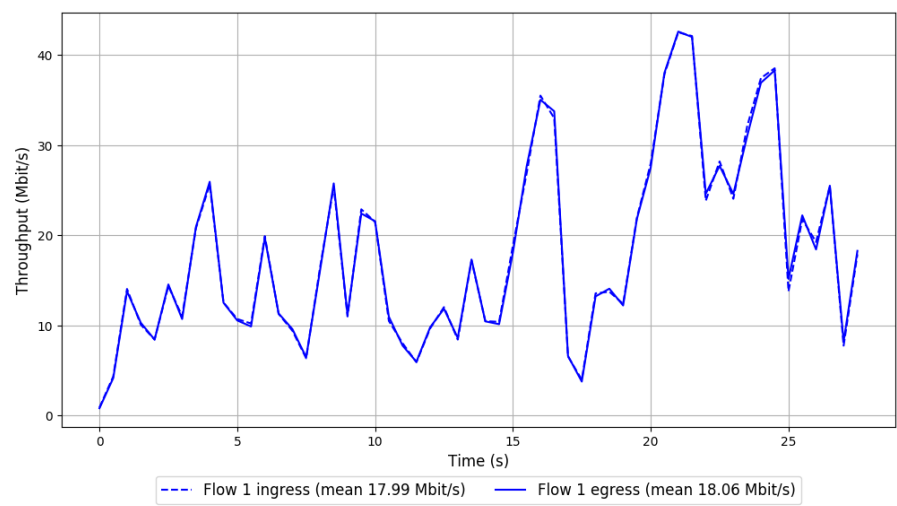


Run 2: Statistics of Copa

Start at: 2018-01-10 14:11:31
End at: 2018-01-10 14:12:01
Local clock offset: -1.388 ms
Remote clock offset: -5.011 ms

Below is generated by plot.py at 2018-01-10 14:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 18.06 Mbit/s
95th percentile per-packet one-way delay: 22.826 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 18.06 Mbit/s
95th percentile per-packet one-way delay: 22.826 ms
Loss rate: 0.00%

Run 2: Report of Copa — Data Link

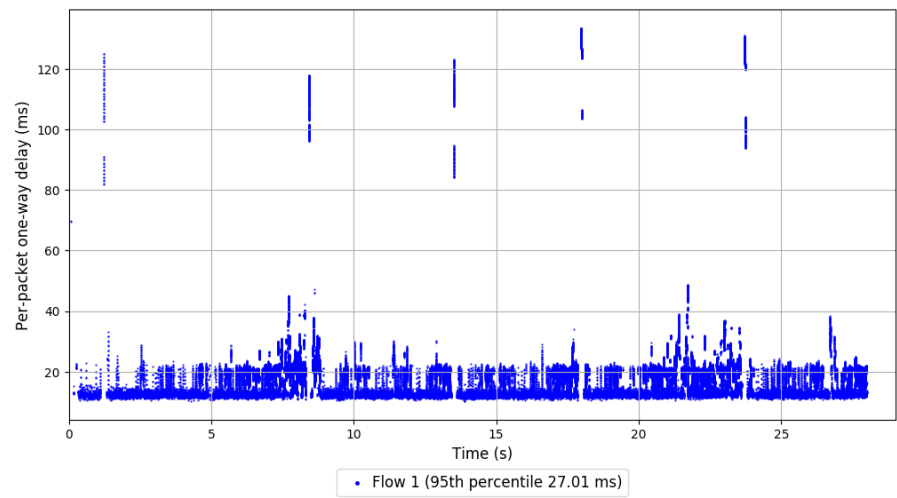
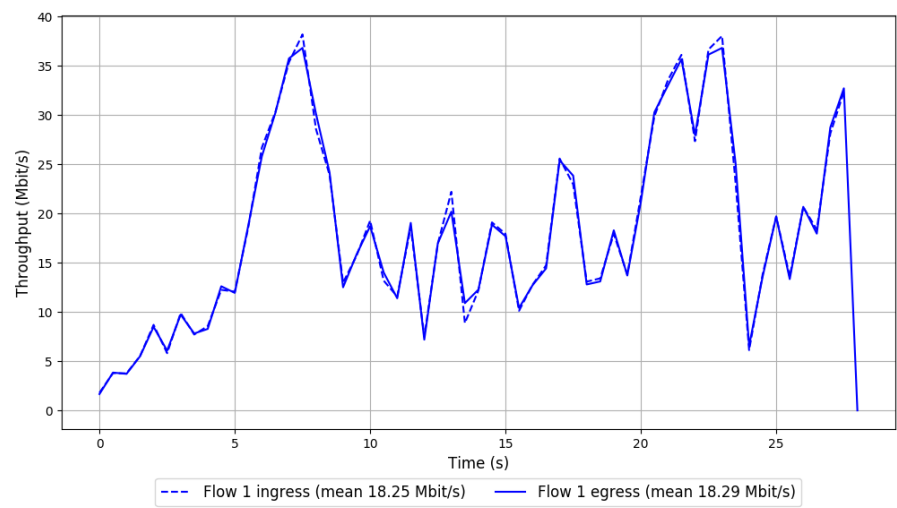


Run 3: Statistics of Copa

Start at: 2018-01-10 14:29:21
End at: 2018-01-10 14:29:51
Local clock offset: -1.571 ms
Remote clock offset: -5.027 ms

Below is generated by plot.py at 2018-01-10 14:45:25
Datalink statistics
-- Total of 1 flow:
Average throughput: 18.29 Mbit/s
95th percentile per-packet one-way delay: 27.014 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 18.29 Mbit/s
95th percentile per-packet one-way delay: 27.014 ms
Loss rate: 0.01%

Run 3: Report of Copa — Data Link

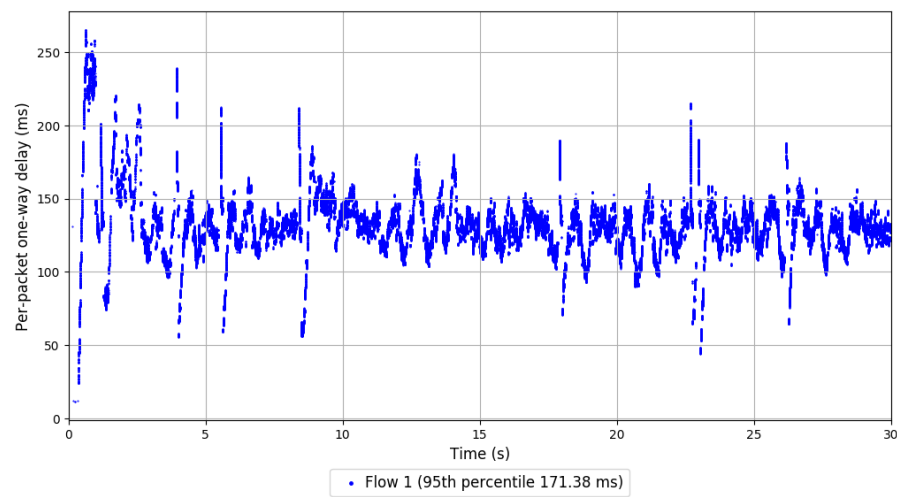
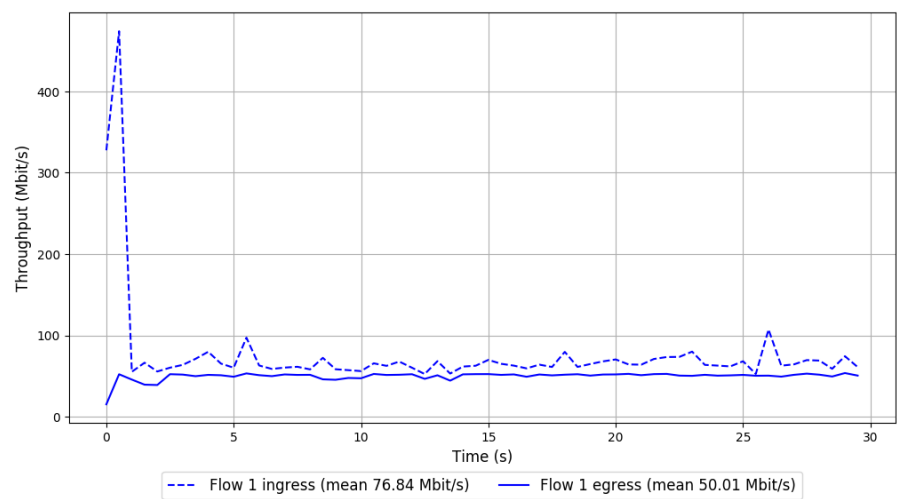


Run 1: Statistics of FillP

Start at: 2018-01-10 13:59:39
End at: 2018-01-10 14:00:09
Local clock offset: -1.321 ms
Remote clock offset: -4.776 ms

Below is generated by plot.py at 2018-01-10 14:45:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 50.01 Mbit/s
95th percentile per-packet one-way delay: 171.381 ms
Loss rate: 35.16%
-- Flow 1:
Average throughput: 50.01 Mbit/s
95th percentile per-packet one-way delay: 171.381 ms
Loss rate: 35.16%

Run 1: Report of FillP — Data Link

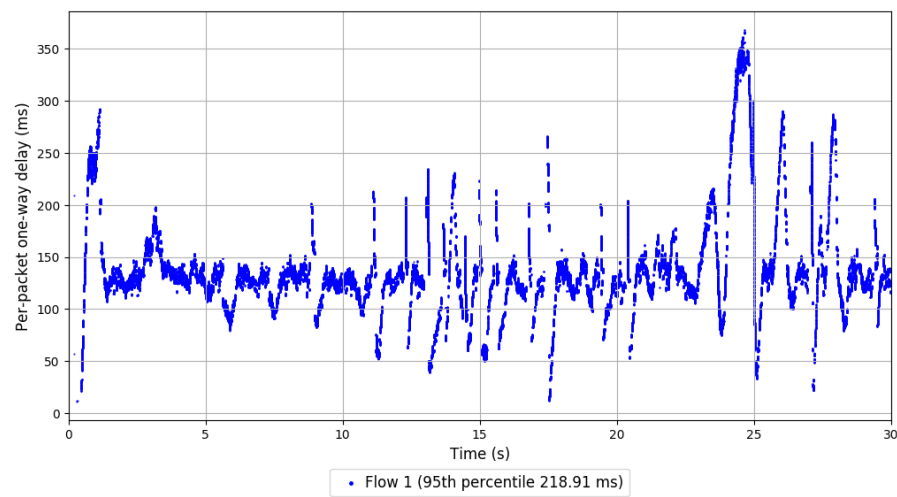
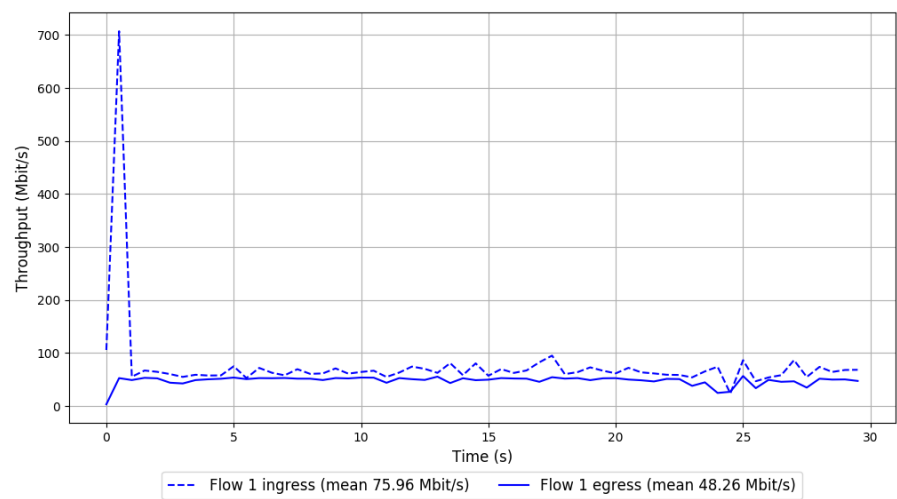


Run 2: Statistics of FillP

Start at: 2018-01-10 14:17:29
End at: 2018-01-10 14:17:59
Local clock offset: -1.527 ms
Remote clock offset: -5.172 ms

Below is generated by plot.py at 2018-01-10 14:45:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 48.26 Mbit/s
95th percentile per-packet one-way delay: 218.913 ms
Loss rate: 36.87%
-- Flow 1:
Average throughput: 48.26 Mbit/s
95th percentile per-packet one-way delay: 218.913 ms
Loss rate: 36.87%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-01-10 14:35:18

End at: 2018-01-10 14:35:48

Local clock offset: -1.615 ms

Remote clock offset: -4.89 ms

Below is generated by plot.py at 2018-01-10 14:45:40

Datalink statistics

-- Total of 1 flow:

Average throughput: 25.78 Mbit/s

95th percentile per-packet one-way delay: 364.608 ms

Loss rate: 52.07%

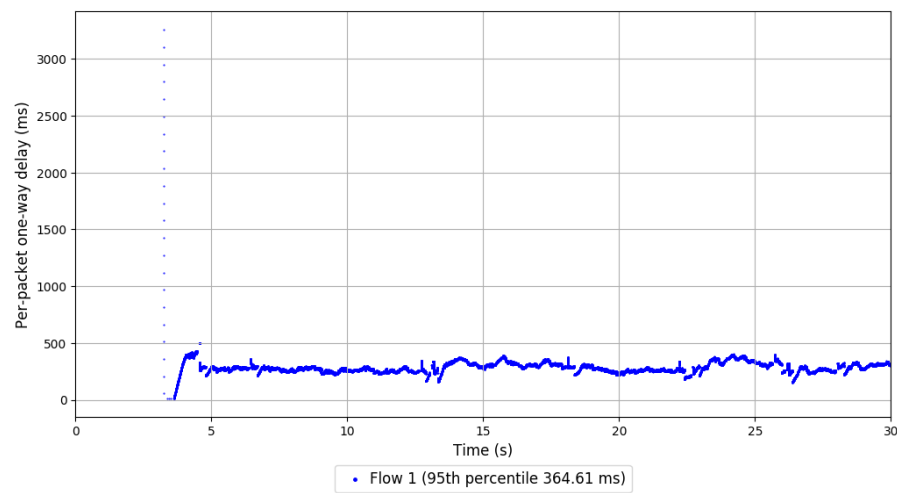
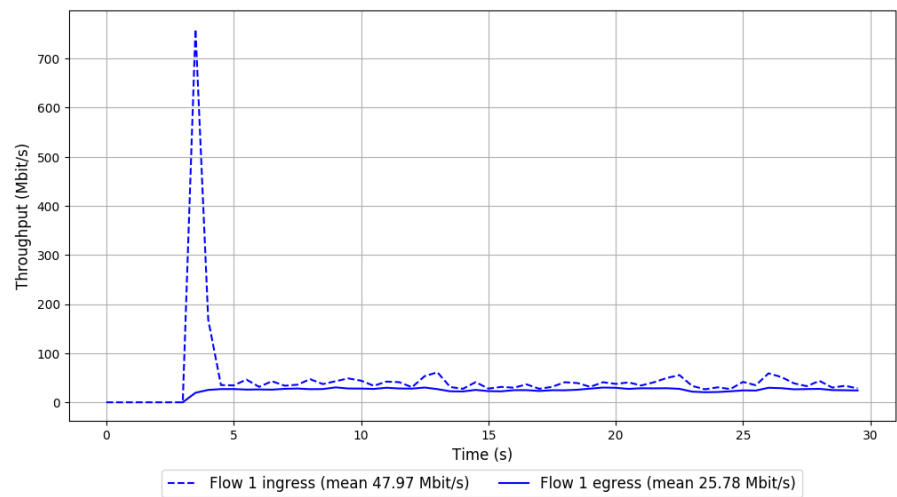
-- Flow 1:

Average throughput: 25.78 Mbit/s

95th percentile per-packet one-way delay: 364.608 ms

Loss rate: 52.07%

Run 3: Report of FillP — Data Link

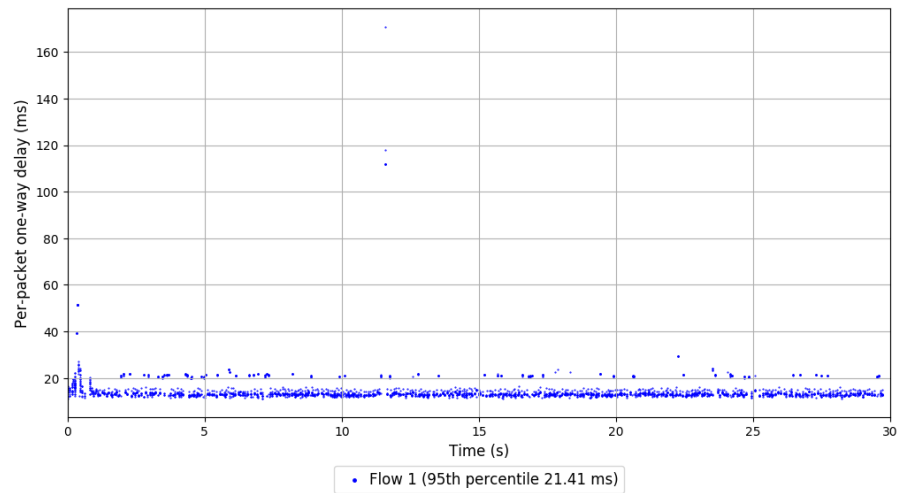
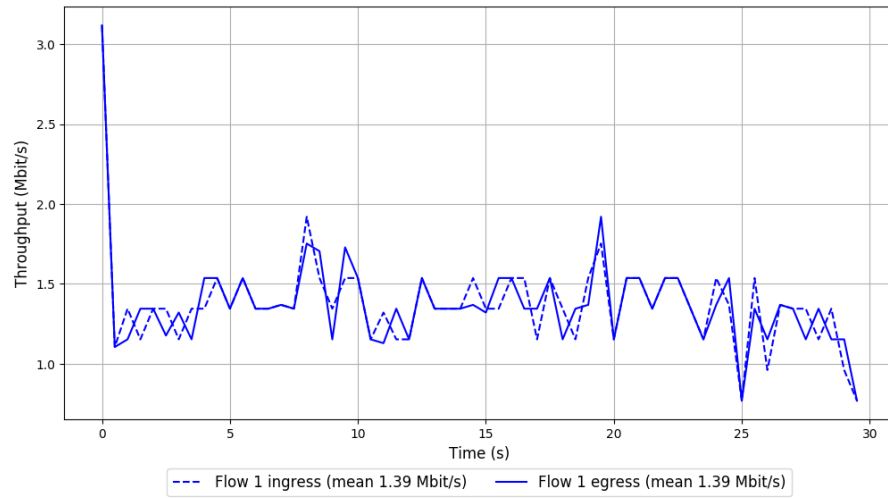


Run 1: Statistics of Indigo

Start at: 2018-01-10 13:48:59
End at: 2018-01-10 13:49:29
Local clock offset: -1.331 ms
Remote clock offset: -5.128 ms

Below is generated by plot.py at 2018-01-10 14:45:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 21.413 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 21.413 ms
Loss rate: 0.00%

Run 1: Report of Indigo — Data Link

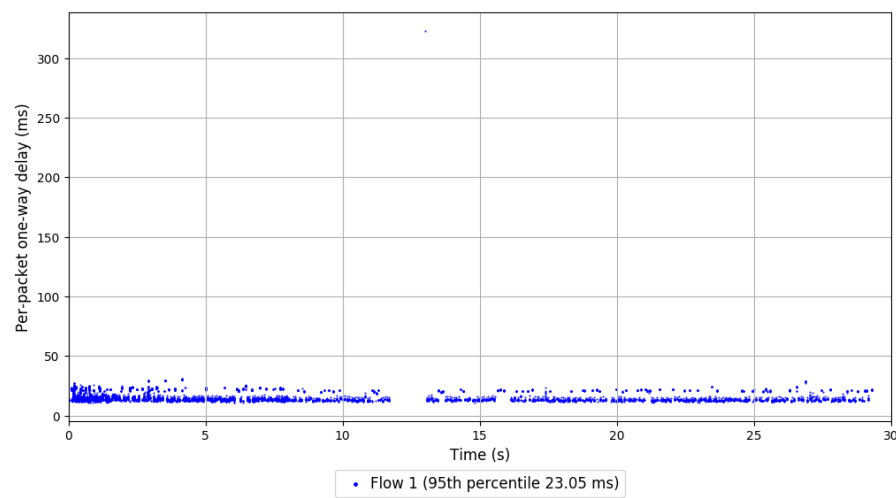
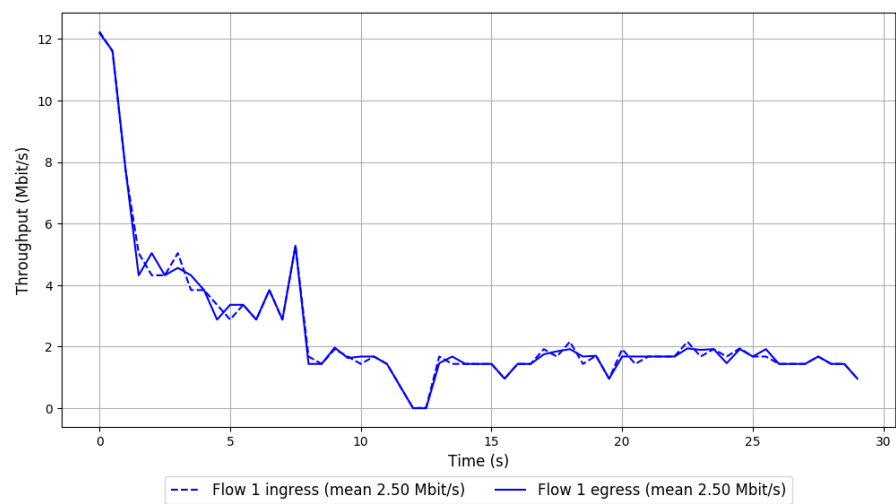


Run 2: Statistics of Indigo

Start at: 2018-01-10 14:06:45
End at: 2018-01-10 14:07:15
Local clock offset: -1.328 ms
Remote clock offset: -4.762 ms

Below is generated by plot.py at 2018-01-10 14:45:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 23.047 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 23.047 ms
Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-01-10 14:24:36
End at: 2018-01-10 14:25:06
Local clock offset: -1.653 ms
Remote clock offset: -5.177 ms

Below is generated by plot.py at 2018-01-10 14:45:40
Datalink statistics
-- Total of 1 flow:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 21.896 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 21.896 ms
Loss rate: 0.00%

Run 3: Report of Indigo — Data Link

